country would need from the commencement of the Fifth Plan onwards. It would also enable the setting up of a refinery capacity of about 2·5 million tonnes a year based on indigenous supply of plant and machinery.

64. *Machine Tools.*—The output of Hindustan Machine Tools (H.M.T.) which was about Rs. 15 crores in 1965-66 is envisaged to be stepped up to about Rs. 40 crores in 1970-71. The Heavy Machine Tools Project of the Heavy Engineering Corporation at Ranchi is estimated to produce about Rs. 5 crores of machine tools in 1970-71. It is hoped that over Rs. 5 crores of machine tools will be produced annually by Pragas and Ambarnath factories by that year. It is proposed to set up two projects, one for medium heavy machine tools at Bhavanagar and another for grinding machines at Ajmer. These projects may together contribute about Rs. 5 crores worth of machine tools in 1970-71. The output of machine tools in the public sector from all these projects will thus be stepped up to about Rs. 55 crores by the end of the Fourth Plan. A target of capacity of Rs. 120 crores and of production of Rs. 105 crores with a provision of Rs. 10 crores worth of export by the end of the Fourth Plan has been assumed for machine tools. As against the present indigenous production of 50 per cent of the demand for machine tools, it is expected that by the end of the Fourth Plan period we would be meeting 75 per cent of a much larger demand. The private sector units existing or licensed are expected to produce about Rs. 38 crores of machine tools, leaving a small gap of about Rs. 12 crores. A machine tool design institute has been set up at Bangalore during the Third Plan. It is proposed to further expand and strengthen it during the Fourth Plan. It will assist the indigeneous development of designs and testing of machine tools manufactured in the country.

65. *Precision Instruments.*—Two units in the public sector, one at Kotah in Rajasthan and the other at Palghat in Kerala, are under implementation. The Kotah unit will mainly produce electro-magnetic indicating instruments, electronic automatic indicating, recording and control instruments and transmitters and sensing elements. The Palghat unit will produce mechanical, hydraulic and pneumatic instruments such as for temperature indicating, controlling and recording, pressure and flow measuring, level measuring and mechanical, hydraulic and pneumatic controlling devices and ancillary equipment. The Kotah unit when in full production, by the end of the Fourth Plan, will produce instruments worth about Rs. 11·5 crores. The full rated production of Palghat unit is about Rs. 9·7 crores to be achieved in early Fifth Plan. Considerable development of capacity and production is also envisaged in the private sector. It is expected that by the end of

the Fourth Plan period, 75 per cent of the requirements of all kinds of instruments and instrumentation may be met from the indigenous sources as against less than 50 per cent at the end of the Third Plan.

66. *Electronics.*—In view of the importance and the vital role of electronic industry in our progress towards industrialisation, the targets of demand and capacity covering the range of electronic field were gone into by the Electronics Committee. The recommendations made in the Report are being pursued. Action has already been initiated for the development of the electronic industry on a substantial scale. The major emphasis is on developing the requisite base for the manufacture of components. By producing standard components on a mass scale and by making them indigenously available at cheaper prices, development will be promoted in the subsidiary sectors like radio receivers, control instruments for industrial use, electro-medical appliances and research equipment. The developments in the public sector will include the setting up of the electronic instrument and component unit by the Atomic Energy Establishment at Hyderabad, a large variety of components and equipments for consumer industries at Bharat Electronics and to some extent by the Indian Telephone Industries. There will also be a substantial development of the industry in the private sector. The production of radio receivers is being stepped up from less than 1·0 million to 3·0 mllion. By 1970-71, it is proposed to achieve a production of about 30,000 T. V. receivers based on indigenous know how. It is aimed to increase the capacity in the field of electronics to sustain a level of production of Rs. 150 crores by the end of the Fourth Plan against the present level of about Rs. 30 crores.

67. *Machinery inputs for Agriculture.*—The main items of machinery falling in this category are; electric motor pumping sets, diesel engine pumping sets, tractors (crawler as well as wheeled type) and power tillers. The existing capacity with progressive expansions will adequately meet the requirements of both electric motor driven as well as diesel driven pumping sets. With regard to wheeled type tractors, a capacity of 30,000 against a demand of 40,000 by 1970-71 is under implementation. This would leave some gap in tractors of below 20 HP range. Measures are being taken to fill the gap. One unit in the public sector and two units in the private sector, with a total capacity of over 1100 crawler tractors in different HP ranges have been licensed/letters of intent issued. Some more cases are under consideration. It is envisaged that by the end of the Fourth Plan or early Fifth Plan, the demand would be largely met from indigenous sources. A capacity of 8000 power tillers has been

licensed and letters of intent issued for additional 82,000. It may take some time before the demand and production get built up. The industry is being kept under review.

68. *Developments in Engineering Industries in Private Sector.*—A large scope for development remains open to the private sector also in the heavy engineering industries. These fields will include power boilers, industrial boilers, transformers (mainly distribution transformers), electric motors, switch gears and control gears, coal mining equipment, drilling equipment, steel castings and forgings, grey iron and malleable iron castings, agricultural tractors, pumps, compressors, ball bearings, machine tools, structurals, mechanical handling equipment, construction machinery, commercial vehicles, industrial refrigerators etc. The capacity for cement and sugar machinery is now adequate to sustain the growth of these industries without recourse to imports, except for a few components. The production of textile machinery is expected to rise further to about Rs. 55 crores per annum by 1970-71. Some of the gaps in specific items of machinery which have been identified are also designed to be filled up, primarily through diversification and expansion. In regard to paper and pulp machinery, although substantial capacity was licensed in the Third Plan, capacity for a number of specialized items of machinery such as waste heat boilers, pumps and compressors is not available. Steps are being taken to set up capacity for these specialized items to fill up the gaps.

FERTILISERS

69. Chemical fertilisers occupy a key role in the strategy visualised to increase agricultural production during the Fourth Plan period. The expansion of fertiliser capacity has therefore been accorded high priority in the industrial programme. A considerable step up in capacity and production of fertilisers is envisaged during the Fourth Plan period.

70. As already indicated, the capacity of the nitrogenous fertilisers industry at the end of the Third Plan period was roughly 600,000 tonnes of N. The factories currently under construction, including the three recent projects taken up for implementation at Durgapur, Cochin and Madras together, will provide an additional capacity of about 800,000 tonnes. In addition, there are three other projects with a total capacity of 400,000 tonnes which can be reckoned on a fairly firm basis, though the actual implementation of these schemes is yet to be taken up. Thus a total capacity of approximately 1·8 million tonnes of N can be regarded as fairly assured on the basis of the steps taken so far. The

total capacity approved for implementation is, however, about 2·4 million tonnes. The financing and foreign exchange arrangements for about 600,000 tonnes of capacity are yet to be firmly settled.

71. Tentatively the targets proposed for nitrogenous fertilisers are 2·4 million tonnes of capacity and 2 million tonnes of production. Of the total capacity of 2·4 million tonnes to be achieved by 1970-71, about 1·6 million tonnes is planned in the public sector and 800,000 tonnes are visualised in the private sector.

72. The development visualised in the fertiliser field during the Fourth Plan has also to provide for an element of advance planning with reference to the requirements in the early years of the Fifth Plan period. It is expected that the growth in the consumption of fertilisers will require the commissioning of two large nitrogenous fertiliser factories every year from the beginning of the Fifth Plan period. Keeping this in view and the time lag of about three years in the construction of fertiliser factories, the total capacity under implementation by the end of the Fourth Plan period would have to be of the order of 3 million tonnes. The financial outlay in the public sector provides for advance action on three fertiliser factories in the Fourth Plan period against the anticipated additional fertiliser requirements in the early years of the Fifth Plan. It is also proposed to licence further capacity in the private sector.

73. A significant development in the fertiliser industry is the considerable degree of self-reliance now achieved. This makes it possible to expand fertiliser production increasingly on the basis of domestic technology and equipment. The Fertiliser Corporation of India and the Fertilisers and Chemicals (Travancore) Limited have expanded their design and engineering facilities to undertake between them the planning, designing and construction of three to four fertiliser factories per annum; they have also recently secured the necessary process technology, as elsewhere indicated. A substantial part of the capital equipment for fertiliser factories is expceted to be available from within the country with the implementation of the machinery programme included in the Fourth Plan. These important achievements will secure the continued growth of the fertiliser industry without the uncertainties which have so far characterised its development.

74. In order to make fertilisers available at lower cost to the cultivators, new units proposed would be based on the latest technological advancement in the production of ammonia and are expected to be of larger size of 160-200 thousand tonnes of N capacity per annum. A substantial proportion of ammonia production would be based on naphtha which would be available from the refineries.

75. In the case of phosphatic fertilisers, the capacity and production targets visualised are 1 million tonnes. Substantial additional production of phosphatic fertilisers is expected to be realised in the form of complex fertilisers which would provide high nutrient fertilisers at comparatively cheap prices. The expansion of single superphosphate capacity will be only marginal.

PESTICIDES

76. The agricultural programme envisages the extension of plant protection measures over a considerably expanded area during the Fourth Plan period. Along with fertilisers, pesticides have an important role to play in agricultural production. Based on the plant protection programme, the demand for pesticides in terms of 'technical materials' is expected to be of the order of 100,000 tonnes by 1970-71. The Fourth Plan programme envisages a substantial increase in the range and output of pesticides. The capacity is proposed to be increased from about 18,000 tonnes in 1965-66 to 100,000 tonnes by 1970-71. Apart from substantial expansion in capacity in items like BHC and DDT already produced in the country, major increases are envisaged in organo phosphates, endrin and carbaryl. In addition to the expansion of the existing public sector projects under Hindustan Insecticides, additional production of DDT and BHC is envisaged in the Gujarat Petro-chemical complex and at the Hindustan Organic Chemicals. In several other items capacity has been licensed more or less to the full extent in the private sector. The production programme is being carefully watched so that gaps, if any, can be filled with addtional capacity in the public sector.

ORGANIC CHEMICALS AND PETRO-CHEMICALS

77. With the increase in refining capacity, substantial quantity of naphtha will be available from domestic sources. At the same time, there is need to meet the shortage in domestic availability of textile fibres, rubber, vegetable oils and non-ferrous metals, which otherwise have to be met through imports, from local production of synthetic fibres, synthetic rubber, synthetic detergents and plastics. These circumstances have opened up the possibilities of developing a large and economic petro-chemical industry. The programme during the Fourth Plan period envisages, in addition to the private sector petro-chemical units in Bombay, the establishment of a complex at Koyali in Gujarat. It is expected that a beginning would also be made towards the development of petro-chemical industries at Barauni. The advantages of large-scale production and planning of the various components of the complex under a common aegis are being kept in view in the planning of these developments. It is expected that the prices of the various products

would be substantially reduced after these complexes are set up and thus the potentialities of exports will be strengthened and diversified. The output of primary organic chemicals such as benzene, toluene, ethylene etc. will be supplemented from petro-chemical sources. An aromatic extraction unit is proposed to be set up at Barauni. Tentatively the targets proposed for some of the important group of petro-chemicals are the following :

	('000 tonnes)
plastics	
polyethylene	100
P.V.C.	100
polystyrene	35
synthetic fibres	
nylon	28
polyester	10
acrylics	10
P.V.A.	10
synthetic rubber	
S.B.R.	30
poly butadiene/butadiene based rubber	20
butyl	20

78. In the production programme of Hindustan Organic Chemicals for the manufacture of basic intermediate chemicals, in the first phase, 14 groups of items would be taken up for production. When the production of intermediates is established, it will place the domestic dyestuff and related industries on a firmer basis by providing some of the basic raw materials from within the country.

INORGANIC CHEMICALS

79. The production targets tentatively proposed for sulphuric acid, caustic soda and soda ash are 2·4 million tonnes, 500,000 tonnes and 600,000 tonnes respectively. These targets represent the total requirements of the economy in 1970-71, as derived from the targets proposed for the consuming sectors. The sulphuric acid target assumes a substantial proportion of phosphatic fertilisers being produced by processes which minimise or eliminate the use of sulphuric acid. Steps in this direction have already been initiated in the product pattern and processes adopted or proposed at the Trombay and Kotah fertiliser units. In caustic soda and soda ash, self-sufficiency is expected to be achieved in the early years of the Fourth Plan period. The caustic soda production will be increasingly integrated with utilisation of the co-product chlorine in the paper, petro-chemical and organic chemical industries. In the case of the soda ash industry, it is envisaged that two or three units will be established in the eastern and in the southern regions bringing about a better regional distribution of the industry An important project which will

spillover from the Third Plan is the development of Amjore pyrites. The scheme for the mining of 240,000 tonnes of pyrites and the establishment of a 400 tonnes per day sulphuric acid plant at Sindri are currently under implementation. In view of the shortage of sulphur, it is proposed that the Amjore pyrites should be more fully exploited and a project for expansion of pyrite mining is under preparation.

PHARMACEUTICALS AND DRUGS

80. The production programme for drugs and pharmaceuticals envisages an increase in the output of drugs from Rs. 150 crores in 1965-66 to Rs. 250 crores by 1970-71. With the completion of the antibiotics and synthetic drugs factories at Rishikesh and Sanatnagar in 1966-67, a very substantial increase in the output of essential drugs will be achieved. In the Fourth Plan period, the Hindustan Antibiotics, Pimpri is planned to diversify its range of production in new lines of antibiotics and Vitamin C. The share of the public sector in the total output of drugs at the end of the Fourth Plan is expected to be of the order of 50 per cent. By the end of the Fourth Plan period, apart from meeting the entire requirements of the country in almost all basic drugs, it is visualised that the industry will make a significant contribution to exports in selected items.

CEMENT

81. The programme for the cement industry invisages expansion of capacity from 12 million tonnes in 1965-66 to 23 million tonnes in 1970-71. The production target visualised for the Fourth Plan is 20 million tonnes. The expansion of capacity will be achieved exclusively based on machinery produced in the country. Capacity somewhat beyond the Fourth Plan target has already been covered by licences or letters of intent. The implementation of the licenced schemes is being periodically reviewed with a view to ensuring expeditious implementation The public sector is also expected to contribute to some additional capacity during the Fourth Plan period. Apart from the projects proposed to be undertaken by the Cement Corporation, State Governments have also proposed the expansion of some of the existing units and the establishment of new ones. Broadly it is expected that the total capacity in the public sector at the end of the Fourth Plan period would be of the order of 3·5 to 4 million tonnes. Attention is being given to the utilisation of slag which would be increasingly available from the steel projects. The slag cement capacity is visualised to be increased from 0·8 million tonnes to about 3 million tonnes.

PAPER AND NEWSPRINT

82. The target of capacity envisaged for paper is 1·10 million tonnes and for newsprint 165,000 tonnes. Although schemes amounting to substantially more than the Fourth Plan target have been licenced for paper, the progress on the schemes has not been satisfactory. The establishment of new paper mills involves fairly heavy capital investment. Financial and raw material arrangements present difficulties in the accelerated growth of the paper industry. In the case of newsprint the only scheme under construction is expansion of NEPA Mills which will expand its capacity to 75,000 tonnes. Three schemes licenced in the private sector have not made satisfactory progress. The realisation of the capacity target for newsprint would therefore depend on more vigorous implementation of the schemes approved in the private sector. The target proposed for newsprint may not be adequate to meet the domestic demand and the need for further capacity will have to be kept in view.

83. A very substantial part of the increased output in paper and newsprint will be based on bagasse. Studies are currently in progress for the establishment of large sized pulp units based on bagasse. It is proposed to establish a Paper and Pulp Development Corporation in the public sector to promote the development of large pulp factories with associated development in the production of paper and newsprint.

SUGAR

84. In sugar, the production target is 4·5 million tonnes. Within this target, it would be possible to make available up to 750,000 tonnes for export. While expansion of the existing units both in the cooperative and in the private sector will be encouraged with a view to improving their economy, new sugar factories are visualised to be in the cooperative sector. The total sugar capacity in the cooperative sector which increased from 0·48 million tonnes in 1960-61 to 0·76 million tonnes in 1965-66 is expected to be stepped up to approximately 1·6 million tonnes by 1970-71.

VEGETABLE OILS

85. In the case of vegetable oils, the requirements of which are expected to be of the order of 3·3 million tonnes by 1970-71, an attempt will be made to harness the maximum possible production of oils from cotton seed and rice bran and through solvent extraction of oil cakes in order to ensure adequate domestic supply without serious detriment to exports. These and other allied matters are currently under examination by an Expert Committee.

COTTON TEXTILES

86. For cotton textiles, the total production is envisaged to be stepped up from about 7600 million metres in 1965-66 to 10,058 million metres by 1970-71. Within the overall production target of 10,058 million metres the share of the mill sector is placed at 5486 million metres and of the decentralised sector at 4572 million metres. The figures of production in the mill sector and decentralised sector in 1965-66 was approximately 4434 million metres and 3,150 million metres respectively. The additional output in the fourth plan period is proposed to be secured to a considerable extent through additional production in the decentralised sector. The distribution in output in the decentralised sector between handlooms and powerlooms is currently under examination. An export target of 665 million metres of cotton textiles is visualised. The expansion in the mill sector will primarily be in terms of increase in spindlage to the extent of about 3 million. The cotton textile industry is also expected to make substantial investments in modernisation programme. In the central public sector it is proposed to set up a Textile Corporation primarily for establishing export oriented spinning mills. The number of cooperative and public sector spinning mills proposed to be established during the Fourth Plan period is 25. Provision has been made in the public sector programme for the establishment of these mills.

JUTE TEXTILES

87. The Third Plan envisaged a production target of 1·3 million tonnes of jute goods and an export target of 0·9 million tonnes. No expansion of capacity was considered necessary, as the industry was capable of achieving the production targets with the existing spindlage and loomage. The production and export targets were realised even in the second year of the Third Plan. Since then, the output and exports have been running slightly above the targets. An outstanding achievement in the Third Plan was the rapid expansion in the production of carpet backing cloth for which there has been a very large increase in demand in recent years. The modernisation of the spinning sector of the industry has virtually been completed. The industry has since taken up the modernisation of post spinning equipment commencing with the replacement of winding equipment and installation of prebeamers.

88. The programme for the Fourth Plan envisages a production target of 1·7 million tonnes, corresponding to 1·1 million tonnes of exports and 600,000 tonnes of internal consumption.

Following devaluation, it is likely that a somewhat higher level of exports may be achieved. Some measure of expansion of the jute industry will be necessary to achieve the Fourth Plan target. The additional capacity is proposed to be achieved primarily through the expansion of existing units.

PLANTATION INDUSTRIES

89. A provision of Rs. 31 crores has been made in the Fourth Plan for the development of plantation industries. The provision is intended for assisting tea, coffee and rubber plantation industries, apart from meeting the financial requirements of the Kerala Plantation Corporation and of the scheme for the development of rubber plantations in the Andamans. This amount will be supplemented by the Commodity Boards from their own resources. The plantation programmes have been drawn up taking into account the long-term prospects of demand and exports. They provide for additional acreage being brought under new plantations which will yield results in the Fifth and subsequent Plan periods. The production targets for the Fourth Plan for natural rubber envisage a step-up in output from about 50,000 tonnes in 1965-66 to 72,000 tonnes in 1970-71. In the case of coffee, output is proposed to be increased from about 60,000 tonnes to 85,000 tonnes and exports from 27,000 tonnes to 45,000 tonnes during the same period. The production target tentatively proposed for tea is 454 million kg; the production achieved in 1965-66 is 375 million kg. The export target for tea is provisionally fixed at 300 million kg. (against actual exports of 197 million kg. in 1965-66). The production and export targets for tea are currently being reviewed in detail. The plantation programme has a considerable significance in the overall export effort and will need particular attention for effective implementation.

COAL

90. The requirements of coal in 1970-71 have been estimated at 106 million tonnes comprising of 33 million tonnes of coking coal, 3 million tonnes of blendable coal and 70 million tonnes of non-coking coal. The coking and blendable coal requirements are related to a production target in 1970-71 of 11·20 million tonnes of ingot steel (excluding 0·5 million tonnes from scrap based electric furnaces), 3·0 million tonnes of foundry pig iron and 3·00 million tonnes of by-product and bee-hive coke. Though the target visualised for 1970-71 represents a substantial step-up over the level of production reached in 1965-66, *viz.* 68 million tonnes, it should not be difficult to achieve it bearing in mind that consequent on the slackening of demand for coal, there was a deliberate slowing down on the development of new

projects and a cutback on production during the Third Plan period. The capacity of the industry to-day is rated at over 75 million tonnes. The major task will be in respect of coking coal, the production of which will need to be stepped up from its present level of about 17 million tonnes to 33 million tonnes. The public sector (N.C.D.C.) will have under production and development 16 projects for coking coal with an ultimate production capacity of 21 million tonnes, against, which a production of about 12·0 million tonnes could be expected to be available in 1970-71. The private sector has a programme for 24 million tonnes against which a production of 22 million tonnes could be expected in 1970-71. The capacity already established would be adequate to meet the requirements of blendable coal in 1970-71. Against the present level of production of non-coking coal of about 48 million tonnes, the demand in 1970-71 is estimated at 70 million tonnes. In estimating the requirements of non-coking coal it has been assumed that there will be no further change-over from coal to furnance oil by industrial units and that about 6·4 million tonnes of fuel requirements of thermal power stations would be met from washery middlings.

The major portion of the additional production of non-coking coal will come from the completion of the Third Plan programmes in both the public and private sectors—the public sector programme is mainly in the outlying fields—and no new project for non-coking coal is envisaged in the Fourth Plan except where it is required to meet the regional requirements of specific consumers like Talcher Industrial Complex, LTC Plant, etc.

The pattern of production visualised at the end of the Fourth Plan as compared with the position at the end of the Third Plan would be as given below :

(in million tonnes)

	Bengal-Bihar fields		outlying fields	
	Third Plan	Fourth Plan	Third Plan	Fourth Plan
coking and blendable coal .	19	36	..	..
non-coking coal . .	32	35	17	35
total . .	51	71	17	35

Within the target of 106 million tonnes, the public sector is expected to provide an output of 43 million tonnes. With this level of output, the share of the public sector in the total production would increase from the level of 23 per cent in 1965-66 to about 40 per cent in 1970-71.

COAL WASHERIES

91. The requirements of clean coal for the steel programme are estimated at about 19 million tonnes—17 million tonnes of washed coal (consisting of 15·5 million tonnes of coking coal and 1·5 million tonnes of blendable coal) and 2 million tonnes of raw coal which will not need beneficiation. On the completion of the coal washeries programme included in the Third Plan, the washed coal capacity will be 11·25 million tonnes in respect of coking coal and 1·5 million tonnes in respect of blendable coal. An additional washed coal capacity of about 4·3 million tonnes is now firmly envisaged—3·00 million tonnes in the public sector and 1·3 million tonnes in the private sector. This would meet the requirements of the steel programme.

The outlay required for implementation of the public sector programme of additional production of coal is estimated at Rs. 275 crores and of coal washeries at Rs. 54 crores or a total of Rs. 329 crores. Since the physical programme in this field has to aim at an ultimate capacity larger than that required in the Fourth Plan with the benefit of full capacity being realised only in the Fifth Plan, the outlay during the Fourth Plan is proposed to be limited to about Rs. 217 crores and the balance of about Rs. 112 crores is expected to spill over into the Fifth Plan.

HARD COKE

92. Against an expected availability of 0·93 million tonnes of by-product hard coke at the end of the Third Plan the demand by 1970-71 is estimated at about 3·0 million tonnes. Making allowance for the output of bee-hive coke ovens and some surplus coke from steel plants, an additional capacity of 2·0 million tonnes will be needed during the Fourth Plan period. This is proposed to be established by the expansion of capacity at the West Bengal—Durgapur coke ovens and setting up additional hard coke capacity in a new unit. The investment on the programme is estimated at about Rs. 44 crores, a part of which might spill over into the Fifth Plan.

A low temperature carbonisation plant for the production of domestic coke will be set up by Singareni Collieries Company. The project which is to be implemented in three stages each with a carbonising capacity of 900 tonnes of coal per day, is estimated to cost Rs. 15·5 crores, the outlay in the Fourth Plan being Rs. 8·9 crores. The first stage will be completed during the Fourth Plan and the remaining two stages early in the Fifth Plan.

IRON ORE

93. As compared with the level of production in 1965-66 of about 23 million tonnes the demand in 1970-71 is estimated at 54 million tonnes—29 million tonnes in respect of the iron and steel programmes and 25 million tonnes for export. The additional production required for export will be met by :

(*a*) the completion of the Third Plan project at Bailadila and Daiteri,

(*b*) developing a second mine at Bailadila initially for a production of 2 million tonnes but capable of expansion to 4 million tonnes subsequently and a mine based on Bellary-Hospet ores, and

(*c*) setting up a pelletisation plant at Bailadila with a capacity of 2 million tonnes.

The additional requirements of the steel programme are proposed to be met by :

(*a*) expansion of Kiriburu and the existing captive mines of the steel plants, and

(*b*) development of the Megahataburu project. The cost of the projects in the public sector for expanding production for exports and for meeting the requirements of Bokaro plant are estimated at about Rs. 102 crores, of which about Rs. 22 crores are expected to spill-over into the Fifth Plan.

Besides, investigations are under way in the Nayagarh-Malangtoli area (Orissa), Bailadila (Madhya Pradesh) and Kudremukh area (Mysore) with a view to establishing additional mining capacity for export.

OTHER MINERAL PROJECTS

94. Other mineral projects envisaged in the Fourth Plan are :

(*i*) Development of the limestone deposits in the Satna area for meeting the requirements of the steel programme;

(*ii*) Mining and beneficiation of fluorite deposits in Gujarat and Rajasthan; and

(*iii*) Development of magnestite deposits in Almora.

MINERAL SURVEYS

95. With a view to intensifying the programme of mineral exploration, the Geological Survey of India and the Indian Bureau of Mines

are proposed to be expanded at an estimated outlay of Rs. 45 crores. A programme of aerial survey directed primarily towards locating quickly new deposits of non-ferrous metals will also be under-taken at an estimated cost of Rs. 3·5 crores.

MINERAL OIL

96. The Third Plan provided for a programme for exploration and production of mineral oil by two agencies, *viz.* Oil and Natural Gas Commission and Oil India Limited. Against a level of production of 6·5 million tonnes of crude oil envisaged in the Third Plan, the actual production in 1965-66 is of the order of 5 million tonnes—2·5 million tonnes from the O.N.G.C. areas and about the same level from Oil India and Assam Oil Company areas in Assam. The Oil and Natural Gas Commission will intensify exploratory and production drilling operations in the promising areas during the Fourth Plan period. The programme is expected to involve an outlay of Rs. 227 crores. On the basis of the reserves available in the structures already proved, the Commission expects to establish by 1970-71 a production of 6·5 million tonnes of crude oil. Crude oil production may increase if additional extractable reserves are proved during the first two years of the Plan period. While Oil India will continue exploration, its programme will be directed mainly towards the development of the existing areas to sustain production at the rate of 3 million tonnes a year. Thus it is expected that indigenous production would be able to meet 9·5 million tonnes out of a total requirement of about 22 million tonnes by the end of the Plan period.

PETROLEUM REFINING

97. Subsequent to the finalisation of the Third Plan, the refinery programme was enlarged from about 11 million tonnes originally visualised to 17·25 million tonnes. Against this, a capacity of about 10·5 million tonnes has been established by the end of the Third Plan period. The remaining projects are expected to be completed by about the beginning of 1968 when the total refining capacity will reach 17·10 million tonnes—9·35 million tonnes in the public sector and 7·75 million tonnes in the private sector. The demand in 1970 in respect of five major petroleum products is now estimated at about 19·5 million tonnes. Keeping in view the demand for other minor products, the Fourth Plan envisages an additional capacity of 5 million tonnes to be achieved by the establishment of two refineries each with a capacity of 2·5 million tonnes at Madras and Haldia respectively. The two refineries are estimated to involve an outlay of about Rs. 74 crores inclusive of Lube Oil production facilities

proposed to be provided at both the places. A refining capacity of 22 million tonnes would by and large be able to meet the requirements of major petroleum products in 1970-71. However, with a view to meeting the increase in demand for petroleum products in the early years of the Fifth Plan, advance action is proposed to be initiated on another refinery in north west India the location of which is yet to be determined.

LUBRICATING OIL PLANTS

98. The demand for lubricating oils in 1970-71 is placed at about 8,00,000 tonnes The Fourth Plan envisages the establishment. of three units; one in Bombay region and one each at Madras and Haldia. The plant at Bombay, estimated to cost about Rs. 9 crores, would be set up in collaboration with a private firm. The other two will be an adjunct to the refineries to be located there.

OIL DISTRIBUTION

99. In keeping with the increasing role of the public sector in the production and refining of mineral oil, the public sector organisation for the distribution of petroleum products will be expanded during the Fourth Plan. An outlay of Rs. 65 crores for this purpose is tentatively proposed. The public sector oil distribution organisation would be handling, by the end of the Plan period, the production of all the public sector units, *i.e.*, about 13 million tonnes of products as compared to about 4 million tonnes at the end of the Third Plan.

INDUSTRIAL AND MINERAL PROGRAMMES OF THE DEPARTMENT OF ATOMIC ENERGY

100. With a view to supporting the nuclear power programme without foreign assistance in regard to nuclear materials, a mine is being developed at Jaduguda (Bihar) for the production of 1000 tonnes of uranium ore per day. Besides establishing the uranium mine and the uranium ore mill, nuclear fuel processing plants are also being set up. The total cost of the mineral and industrial programmes related to the development of nuclear power are estimated at Rs. 53 crores. An outlay of about Rs. 40 crores is envisaged in the Fourth Plan.

ANNEXURE I

FOURTH FIVE YEAR PLAN

Industrial Projects in the Public Sector—Central Government

(Rs. crores)

	name of the project	location	total cost of the project	total investment during the Fourth Plan
1	2	3	4	5
	metals			
1	Expansion of Bhilai Steel Plant 1st stage (c)	Bhilai	178·60	24·60
2	Expansion of Bhilai Steel Plant 2nd stage (t)	Bhilai	62·90	62·90
3	Bhilai VIth Blast Furnace (c) . .	Bhilai	32·50	23·00
4	Expansion of Rourkela Steel Plant 1st stage (c)	Rourkela	150·00	47·00
5	Expansion of Rourkela Steel Plant 2nd stage (u)	Rourkela	159·40	100·00
6	Expansion of Durgapur Steel Plant 1st Stage (c)	Durgapur	81·00	30·00
7	Expansion of Durgapur Steel Plant 2nd stage (a)	Durgapur	343·00	312·20
8	Technological improvements for increasing blast furnace capacity (u) x		13·00	13·00
9	Bokaro Steel Plant (a) . . .	Bokaro	701·16	646·16
10	New steel plants (u) x . . . . (preliminary work)	Not yet decided	Not yet decided	65·00
11	Mysore Iron and Steel Works (Conversion and expansion of pig iron) (c)	Bhadravati	24·25	14·15
12	Alloy, Tool and stainless steel plant (c)	Durgapur	75·00	32·00
13	Expansion of Durgapur Alloy Steel Plant (u) x	Durgapur	80·00	80·00
14	Koyna Aluminium (t)	Koyna	56·30	38·70
15	Korba Aluminium (a)	Korba	100·30	42·54
16	Khetri Copper Project (including Kolihan Copper project) (c) . .	Khetri	87·25	74·00
17	Rakha and other copper projects (a) x	Rakha	67·10	5·00
18	Hindustan Zinc Ltd. (c) . .	Udaipur	12·00	12·00
19	Expansion of Zawar Mines (u) x .	Udaipur	23·66	3·00
	total of metals . .			1625·25

1	2	3	4	5
	machinery and engineering industries			
20	Bharat Heavy Electricals (c)	Hardwar	84·30	56·00
21	Bharat Heavy Electricals (c)	Ramachandrapuram	35·49	12·60
22	Expansion of Bharat Heavy Electricals (a)	Ramachandrapuram	5·25	3·25
23	Heavy Electrical Plant (c)	Bhopal	78·34	20·75
24	Bharat Heavy Electricals (c)	Tiruchi	23·28	1·17
25	Expansion of Bharat Heavy Electricals (a)	Tiruchi	11·73	11·73
26	New unit for power boilers (u) x	Not yet decided	21·56	5·00
27	Expansion of Heavy Electricals (Transformers (a)	Bhopal	3·60	3·60
28	Expansion of Heavy Electricals (Traction Motors (a)	Bhopal	3·20	3·20
29	H.T. Switchgear Plant (ASEA) (c)	Hyderabad	2·80	2·80
30	Aluminium sheathed telecommunication Cables at Hindustan Cables (c)	Rupnarainpur	3·00	3·00
31	Expansion of Hindustan Cables (c)	Rupnarainpur	7·62	7·62
32	Co-axial cables type 174 (a)	do.	0·11	0·11
33	Copper Ply conductors (a)	do.	2·65	2·65
34	Second Cable Factory (u) x	Not yet decided	13·90	13·90
35	Heavy Machine Building Plant (including structurals shop and balancing equipment) (c)	Ranchi	57·75	10·50
36	Mining and Allied equipment projects (c)	Durgapur	39·24	11·30
37	Pumps and Compressors Project (t)	Allahabad	18·70	18·70
38	Fabrication shop for fertilisers and chemicals (t)	Not yet decided	12·80	12·80
39	Heavy Plate and Vessels Project (t)	Vishakhapatnam	17·80	17·80
40	Heavy Machine Tools Plant (c)	Ranchi	26·75	15·00
41	Machine Tool Plant (t)	Bhavnagar	14·60	14·60
42	Machine Tool Plant (t)	Ajmer	8·50	8·50
43	Expansion of Machine Tool Plant (t) x	Pinjore	4·85	4·85
44	Expansion of Machine Tool Plant (u) x	Kalamassary	4·85	4·85
45	Expansion of Machine Tool Plant (u)	Hyderabad	4·85	4·85
46	Additional capacity for Machine Tools (u) x	Not yet decided	20·49	5·00
47	Precision Instruments (c)	Kotah	15·88	13·20
48	Precision Instruments (c)	Palghat		
49	Diversification of National Instruments (a)	Calcutta	1·41	0·28
50	Electronics (u) x	Not yet decided	21·40	6·40
51	Agricultural Tractors (a) x	Not yet decided	18·41	10·00

1	2	3	4	5
52	Dry Dock Project (u)	Vishakhapatnam	5·00	5·00
53	Hindustan Shipyard (c)	do.	8·85	8·66
54	Expansion of Hindustan Shipyard (u)x			
55	Wet Basin (u) x	do.	2·20	2·20
56	Second Shipyard (first phase) (u)	Cochin	35.00	15·00
	total of Machinery and Engineering Industries			336·87
	fertilisers and pesticides			
57	Namrup Fertilisers (c)	Namrup	19·84	5·00
58	Gorakhpur Fertilisers (c)	Gorakhpur	27·44	8·80
59	Madras Fertilisers (t)	Madras	41.80	41·00
60	Expansion of Trombay Fertilisers (u)	Trombay	30·90	30·00
61	Durgapur Fertilisers (a)	Durgapur	35·90	35·00
62	Cochin Fertilisers (a)	Cochin	33·52	32·60
63	Fourth Stage expansion of FACT(u)x	Alwaye	4.86	4·00
64	Modernisation and expansion of fertiliser plants (a)	Rourkela, Sindri	10·00	10·00
65	Other fertiliser projects (u) x	Not yet decided	140·00	100·00
66	Expansion of D.D.T. and B.H.C (u)x	Delhi and Alwaye	2·00	2·00
	total of fertilisers and pesticides			268·40
	intermediates			
67	Foundry Forge Plant (c)	Ranchi	113·39	54·10
68	Central Foundry Forge for HEL (t)	Hardwar	26·00	26·00
69	New Foundry Forge Project (t)	Wardha	23·00	23.00
70	Heavy Structural Project (t)	Allahabad	6·80	6·80
71	Tungabhadra Steel Products (y)	Tungabhadra	2·50	2·50
72	P.C.D.C. Project (c)	Sindri and Amjore	7·67	5.80
73	Expansion of P.C.D.C. (u) x	Amjore	6·75	6·20
74	Raw Film Project (c)	Ooty	9·30	3·80
75	Expansion of Nepa Mills (c)	Nepanagar	10·65	6·00
76	Gujarat Petro-chemical complex (u)	Koyali	60·00	47·00
77	Petro-chemical complex (aromatic extraction plant) (u)	Barauni	14·00	10·00
78	Organic Intermediate Plant (u)	Panvel	40·30	28·00
79	Cement Corporation of India		45·00	25·00
80	Paper and Pulp Schemes (u)	Not yet decided	51·52	41·50
81	Salt Washery-cum sodium sulphate plant (u) x	Sambhar	1·65	1·65
82	Travancore Titanium Products (u)	Kerala	2·50	2·50
	total of intermediates			289·85

1	2	3	4	5
consumer goods				
83	Additional capacity for watches (HMT) (u)	Bangalore	3·20	3·20
84	Synthetic Drugs Plant (c) . .	Sanatnagar	19·00	16·00
85	Antibiotics Plant (c) . . .	Rishikesh	20·80	
86	Opthalmic Glass Project (c) . .	Durgapur	5·03	3·80
87	Security Paper Mills (c) . .	Hoshangabad	6·00	6·00
88	Expansion of Drugs and Pesticides (u) x	Not yet decided	15·00	5·70
89	Export Oriented spinning mills (u) x	Not yet decided	16·20	16·20
90	New Alkaloid Factory (t) . .	Neemuch	0·60	0·60
91	Mandi and Kharagoda Salt Works .	Mandi and Kharagoda	1·00	1·00
	total of consumer goods . .			52·50
miscellaneous				
92	Pre-Investment studies and other Miscellaneous Projects . . .		20·00	20·00

(c) Continuing Schemes from the Third Plan
(t) Projects for which foreign credits have been arranged and tied
(a) Projects for which foreign credits have been assured/or under negotiation
(u) Projects for which foreign credits have not yet been arranged
(x) Schemes for which projects reports are yet to be prepared
(y) Taken over from the State Government and to be further expanded.

NOTE :—Figures of total cost represent approximate estimates following devaluation and may undergo revision.

FOURTH FIVE YEAR PLAN

II. Minerals Schemes in the Public Sector—Central Government

(Rs. crores)

	name of the project	location	total cost	total investment during the Fourth Plan
1	2	3	4	5
1	Coal Production N.C.D.C. (t) (including washeries) . . .		126·19	68·90
2	Singareni colleries (c)	Kothagudium (Andhra Pradesh)	25·29	12·20

1	2	3	4	5
3	Central Ropeways (c) . . .	West Bengal and Bihar	22·12	10·16
4	Neyveli Lignite Project (c) . .	Neyveli, Madras	123·00	1·70
5	Additional Coal Production, N.C. D.C. (t) (a)		90·70	60·50
6	Central Ropeway Schemes (u) x .	West Bengal, Bihar	10·80	10.80
7	Singareni colleries (u) x . . .		26·30	14·00
8	Coal Washeries (a). . . .		53·70	40·50
9	Durgapur Coke Oven expansion (c)	Durgapur, W. Bengal	3·52	3·52
10	Doubling of the Durgapur Coke Ovens (u) x	Durgapur, W. Bengal	17·61	15·00
11	Ramgarh Industrial Complex (u) .	Ramgarh, Bihar	38·52	25·00
12	Bailadila Iron ore project (c) . .	Bailadila, M.P.	18·00	12·69
13	Bailadila Second Mine (a) . .	Bailadila, M.P.	23·54	18·50
14	Rail link conveyor for the above .	Do.	4·24	4·24
15	Kiriburu Iron Ore Mine Expansion (a)	Kiriburu, Orissa	11·00	11·00
16	Meghahataburu Iron Ore project .	Meghahataburu,	24·00	15·00
17	Pelletisation Plant at Bailadila . .	Bailadila, M.P.	13·15	8·60
18	Bellary—Hospet Iron Ore project .	Bellary-Hospet, Mysore	12·13	12·13
19	Panna Diamond Project (c) . .	Panna, M.P.	3·09	1·86
20	Kolar Gold Mines Expansion (u)	Kolar, Mysore	2·55	2·55
21	Manganese Ore Beneficiation plant (u) x		2·00	2·00
22	L.T.C. Plant at Singareni (u) . .	Kothagudium A.P.	15·42	8·90
23	Expansion of the Geological Survey of India and the Indian Bureau of Mines (u)		45·00	45·00
24	(a) Aerial Survey for Base Metals (t)		3·50	3·50
	(b) Experimental mining for various minerals			1·34
25	Oil and Natural Gas Commission (a)		227·00	227·00
26	Oil India Ltd.—Oil Exploration and exploitation (u)	Assam	26·09	26.09
27	Barauni, Koyali, Cochin refineries (c)	Barauni, Koyali, Cochin	91·70	5·30
28	Madras refinery (t)	Madras	35·00	35·00
29	Haldia refinery (a)	Haldia, W. Bengal	39·20	39·20

	2	3	4	5
30	North West refinery (u) x .		31·00	10·00
31	Govt. Esso-Lube Oil Project (t)	Bombay	9·13	9·13
32	Another lubricating oil plant (u) x .		14·45	5·00
33	Oil Distribution and Pipelines (u) .		69·14	69·14
34	Industrial and mineral programmes of the Deptt. of Atomic Energy (u) .		58·00	40·00
	total			875·45

(c) Continuing schemes from the Third Plan
(t) Projects for which foreign exchange have been arranged and tied up
(a) Projects for which foreign credit has been assured or under negotiation
(u) Projects for which foreign credits have not been arranged
(x) Projects for which project reports are yet to be prepared.

NOTE :—Figures of total cost represent approximate estimates following devaluation and may undergo revision.

ANNEXURE II

Capacity and production in 1960-61, targets and estimates of capacity and production for 1965-66 and tentative targets for 1970-71 for important industries.

industry	unit	actuals for 1960-61		targets for 1965-66		estimated actuals for 1965-66		targets for 1970-71	
		cap.	prod.	cap.	prod.	cap.	prod.	cap.	prod.
1	2	3	4	5	6	7	8	9	10
metals									
1 ***iron and steel***									
(*a*) steel ingots	million tonnes	6·1	3·4	10·2	9·3	7·0	6·2	14·8	11·7
(*b*) finished steel	,,	4·6	2·3	7·6	6·8	5·2	4·6	11·0	8·8
(*c*) pig iron for sale	,,	1·1	1·1	1·5	1·5	1·2	1·2	3·2	3·0
2 alloy tool and stainless steel . .	000 tonnes	..	..	203·0	203·0	50·0	35·0	460·0	400·0
3 aluminium	,,	18·2	18·3	88·5	81·0	88·0	65·0	330·0**	330·0
4 copper	,,	8·9	8·9	22·0	20·0	10·0	9·8	37·5	37·5
5 zinc	,,	..	..	15·0	15·0	18·0	5·0	78·0	70·0
machinery									
6 commercial vehicles . . .	000 numbers	28·0	28·4	60·0	60·0	60·0	34·0	90·0	80·0
7 passenger cars	,,	20·2	26·6	30·0	30·0	30·0	24·5	50·0	60·0
8 jeeps and station wagons . . .	,,	5·5		10·0	10·0	12·0	10·0	25·0	20·0
9 motor cycles, scooters and mopeds	,,	23·0	17·6	48 to 60	50·0	150·0	50·0	150·0	120·0

**Effective capacity

M4PC/66—21

ANNEXURE II—*contd.*

industry	unit	actuals for 1960-61		targets for 1965-66		estimated actuals for 1965-66		targets for 1970-71	
		cap.	prod.	cap.	prod.	cap.	prod.	cap.	prod.
1	2	3	4	5	6	7	8	9	10
10 ball and roller bearings . .	mill. number	1·7	3·2	11·0	15·0	27·0	9·0	35·0	30·0
11 generators-thermal . . .	mill. KW	..	..	..	..	0·6	—	2·9	1·4
12 generators-hydro	,,	..	..	..	—	0·5	..	1·7	0·8
13 turbines steam	,,	..	..	..	..	0·6	..	2·9	1·4
14 turbines hydro	,,	..	..	..	..	0·5	..	1·7	0·8
15 transformers 66 KV and above .	mill. KVA	..	..	..	..	4·0	2·0	7·5	7·0
16 transformers 33 KV and below .	,,	1·40	1·39	4·0	3·5	3·0	3·3	5·5	5·0
17 power boilers	mill. KW	..	..	—	—	1·1	neg.	2·2	1·4
18 motors above 150 KW . . .	,,	..	..	..	..	0·5	1·8	1·25	1·0
19 motors 150 KW or below . . .	,,	1·13	0·73	2·2	1·9	1·5		3·75	3·5
20 switchgears and control gears .	Rs. crores	N.A.	4·0	..	..	18·0	17·0	50·0	40·0
21 machine tools	,,	8·0	7·00	30·0	30·0	30·0	23·0	120·0	105·0
22 metallurgical and other equipment	000 tonnes	—	—	80·0	15 to 20	30·0	11·0	100.0	70·0
23 coal and other mining machinery	,,	..	..	45·0	20·0	45·0	7·0	60·0	50·0
24 cotton textile machinery . .	Rs. crores	12·0	10·4	22·0	20·0	40·0	28·0	60·0	55·0
25 jute machinery	,,	2·5	1·7	2·5	2·5	5·0	3·5	10·0	8·0
26 paper machinery	,,	3·7	0·01	8·5	6·5	7·0	2·0	25·0	20·0
27 sugar machinery	,,	11·6	4·2 (*c*)	15 to 16	14·0	16·0	8·0	20·0	16·0

28 cement machinery	Rs. crores	1·1	0·6	4·5	4·5	20·0	3·5	25·0	28·0
29 railway wagons (in terms of 4 wheelers)	000 numbers	26·0	11·77	33·5	33·5	49·0	35·5	40·0	40.0
30 *agricultural machinery*									
(*a*) agricultural tractors	,,	..	..	12·0	10·0	15·0	5·6	40·0	35·0
(*b*) power driven pumps	,,	128·0	105·0	184·0	150·0	200·0	200·0	400·0	400·0
(*c*) diesel engines	,,	47·7	43·2	72·0	66·0	100·0	85·0	200·0	200·0
31 radio receivers	,,	279·0	280·0	900	800	500	500	1500	1500
32 *electric lamps*									
(*a*) G. L. S. and others	mill. numbers	47·6	41·8	76·0	68·0	70·0	70·0	185	185
(*b*) fluorescent tubes	,,	1·2	1·7	7·0	6·0	4·5	4·4	20	20
33 electric fans	,,	1·74	1·06	2·8	2·5	2·0	1·5	3·5	3·5
34 *fertilizers*									
(*a*) nitrogenous (in terms of N)	000 tonnes	161·5	99·0	1016	812	586·5	233	2400	2000
(*b*) phosphatic (in terms of P_2O_5)	,,	58·4	54·0	508	406	230	111	1000	1000
35 *pesticides*									
(*a*) D.D.T.	,,	2·8	2·8	2·8	2·8	* 18·0	* 15·0	* 100	90*
(*b*) B.H.C.	,,	4·0	3·9	15·0	12·0				
36 *heavy chemicals*									
(*a*) caustic soda	,,	126·0	99·0	406	345	277	218	600	500
(*b*) soda ash	,,	273.0	148.0	540	457	363	331	700	600
(*c*) sulphuric acid		536·0	361·0	1,778	1,524	1,181	664	2600	2400

(*e*) Relates to calendar year.

*Inclusive of all items of pesticides.

ANNEXURE II—(*Concld*)

industry	unit	actuals for 1960-61		targets for 1965-66		estimated actuals for 1965-66		targets for 1970-71	
		cap.	prod.	cap.	prod.	cap.	prod.	cap.	prod.
1	2	3	4	5	6	7	8	9	10
37 dyestuffs	000 tonnes	7·8	5·6	11·4	9·6	10·0	7·0	16·0	14·0
38 drugs and pharmaceuticals	Rs. million	..	N.A.	—	..	1500	1500	2500	2500
39 paints and varnishes (organised sector)	000 tonnes	90·0	53·5	163	142	106	73	160	140
40 automobile tyres	mill. Nos.	1·61	1·49	4·5	3·85	3·30	2·6	6·5	6·0
41 *paper and paper Board*									
(*a*) paper and paper board	000 tonnes	418·0	350·0	833	711	680	550	1100	900
(*b*) newsprint	,,	30·0	23·3	152·4	128	30	30	165	150
(*c*) security paper	,,	—	..	1·5	1·5	..	..	2·7	2·7
42 cement	mill. tonnes	9·4	7·97	15·3	13·2	12·0	10·8	23·0	20·0
43 *cotton textiles*									
(*a*) yarn	mill. kgs	12·7@	801	16·5@	1021	16·27@	907	19·35@	1232
(*b*) cloth (mill-made)	mill. metres	1·99†	4649	2·25†	5300	2·09†	4434	2·30†	5486
44 jute textiles	000 tonnes	1200	1,022	1200	1300	1200	1354	1700	1700
45 rayon filament	mill. kgs.	23·8	21·3	59·0	59·0	47·0	51·5	67·0	67·0
46 staple fibre	,,	21·8	21·8	34·1	34·1	26·0	42·0	42·0	42·0

47	woollen fabrics	mill. metres.	43·6	14·0	43·6	31·8	43·6	10·0	43·6	37·3
48	sugar	mill. tonnes	2·25	3·0	3·56	3·56	3·20	3·55	4·5	4·5
49	iron ore	„	—	11·0	—	30·0	...	23·0	..	54·0
50	coal	„	..	55·7	..	98·6	..	68·0	..	106·0
51	crude oil	„	—	0·4	—	6·0	..	5·0	..	9·5
52	petroleum products*	„	6·1	5·8	10·92	9·97	10·5	9·86	22·25	20·0

@Million spindles.

†Lakh looms.

*Capacity is shown in terms of crude throughout.

CHAPTER XV

TRANSPORT AND COMMUNICATIONS

THE TRANSPORT SYSTEM

AT the end of the Third Plan, the country's transport system comprised the following principal services :

government railways	58276	kilometres
of which, broad gauge	28440	,,
metre gauge	25510	,,
narrow gauge	4326	,,
non-government railways	662	,,
roads	958000	,,
of which, surfaced roads	284000	,,
other roads	674000	,,
road transport—		
trucks	250000	
commercial buses	70000	
ports—capacity—		
major ports	57	million tonnes
intermediate and minor ports . .	9	,, ,,
shipping—		
overseas	1217715	grt
coastal	322761	grt
airlines—available tonne-kilometres		
Indian Airlines	155	million
Air India	338	,,
inland water transport—		
length of routes operated . .	13500	kilometres
Assam and North-East region . .	8500	,,
others	5000	,,

2. During the past fifteen years, there has been considerable expansion in capacity of all modes of transport other than inland water

transport. In the case of the railways, the initial phase of rehabilitation was followed by substantial increase in capacities to meet the growing pressure of traffic through addition of rolling stock, introduction of heavier wagons and longer trains and improvement of signalling and control system and phased change-over from steam to diesel and electric tractions. Between 1950-51 and 1965-66, goods traffic carried by the railways increased about two and a half times and passenger traffic by about 45 per cent. The volume of goods traffic carried by road during these fifteen years rose about six times and passenger traffic nearly three and half times. The total length of roads increased from 400,000 kilometres at the end of 1950-51 to 958,000 kilometres at the end of 1965-66. The overall shipping tonnage during the period increased from 3·9 lakh grt to 15·4 lakh grt and traffic handled by major and minor ports increased from about 24 million tonnes to about 51 million tonnes in addition to about 8 million tonnes through Mormugao. Civil air transport was nationalised in 1953 and both internal air services and international services have since greatly expanded. The present state of different transport services and the directions in which they need to be developed and strengthened have been recently reviewed in detail in the Final Report of the Committee on Transport Policy and Coordination.

3. Industrial and economic developments during the Fourth Plan will make heavy demands on various modes of transport, more especially railways, road transport and ports. Programmes of expansion and proposals for investment are related to these larger demands. Wherever possible, in assessing traffic requirements during the Fourth Plan and making proposals for meeting them, a tentative view has also been taken of requirements over the decade 1966-76. Traffic requirements and projections for the Fourth Plan are briefly reviewed below for different modes of transport.

4. *Rail transport.*—Originating traffic carried by rail was expected to increase during the Third Plan by about 59 per cent. However, because of slower development and marked changes in the volume of traffic accounted for by coal, steel and raw materials for steel plants, the actual increase has been a little over 30 per cent. In 1965-66, the railways had wagon and locomotive capacity of 225 million tonnes and 215 million tonnes respectively against which the originating traffic during the year amounted to 205 million tonnes. This margin of unutilised capacity is largely related to short-lead traffic on account of steel plants and movement of raw coal to washeries. During the Fourth Plan, goods traffic carried by rail is expected to rise by 50 per cent to 308 million tonnes. In terms of different commodities

the rail traffic estimates for the Fourth Plan are as follows :

Table 1. Estimates of rail traffic for 1970-71

(In million tonnes)

steel and raw materials		45·5
coal		101·0
iron ore for export		13·0
cement		16·0
railway materials		23·0
general goods		109·5
of which, foodgrains	18·5	
petroleum products	14·5	
iron and steel (secondary movements)	9·4	
fertilisers	4·5	
all other goods	62·6	
total		308·0

By the end of the Fifth Plan, originating traffic is expected to be in the region of 430 million tonnes.

5. In respect of passenger traffic, railway programmes for the Third Plan provided for an increase of 3 per cent per annum in non-suburban traffic with somewhat larger increase in suburban traffic. Programmes for the Fourth Plan have been formulated on the assumption that there will be an increase of 4 per cent per annum in non-suburban traffic and a much larger increase in suburban traffic. The broad objective for suburban traffic is to provide during the peak period the maximum possible frequencies of train services on the existing lines with marginal increases in line capacity wherever feasible. In terms of passenger kilometres, passenger traffic rose by about 24 per cent during the Third Plan. Increases of this order are also anticipated during the Fourth and Fifth Plan periods.

6. *Road transport.*—The volume of goods traffic carried by road is expected to increase from 33 billion tonne kilometres in 1965-66 to about 60 billion tonne kilometres in 1970-71 and to about 115 billion tonne kilometres in 1975-76. Passenger traffic by road is estimated to rise from 80 to 120 billion passenger kilometres in 1970-71 and to about 195 billion passenger kilometres in 1975-76. On the basis of anticipated increase in traffic, the number of trucks would need to increase from 250,000 in 1965-66 to 425,000 in 1970-71 and of commercial buses from 70,000 in 1965-66 to about 100,000 in 1970-71.

7. *Ports.*—The major ports handled a total traffic of about 48·4 million tonnes in 1964-65 and 50·2 million tonnes in 1965-66. The total traffic to be handled by the major ports by the end of the

Fourth Plan is estimated at 82·5 million tonnes. The traffic at minor ports is expected to increase from about 9 million tonnes in 1965-66 to about 12 million tonnes in 1970-71.

OUTLAYS AND PROGRAMMES

8. The total investment in transport and communications during the Fourth Plan is placed at Rs. 3640 crores, of which Rs. 630 crores are expected to be in the private sector and Rs. 3010 crores in the public sector. The distribution of investment in the public sector is shown in the table below along with the initial provision and anticipated expenditure during the Third Plan. The programmes to be carried out and outlays proposed for them are reviewed briefly in the paragraphs to follow.

Table 2. Outlays on transport and communications

(Rs. crores)

programme	Third Plan		Fourth Plan	
	initial provision	anticipated expenditure	as in the Memorandum of September 1965	proposed outlays
transport				
railways . . .	890	1323	1310	1410*
roads . . .	272	445	730	760**
road transport . .	25	27	65	65
ports . . .	86	91	153	170
farakka barrage . .	..	@	50	65
shipping . . .	57	41	90	90
inland water transport .	7	3	13	13
lighthouses . .	6	4	6	7 @
civil air transport (including meteorology) .	55	50	73	125 @
tourism . . .	8	6	25	25
total for transport .	1406	1990	2515	2730
communications . .	73	118	213	235
broadcasting . .	7	8	40	45
grand total .	1486	2116	2768	3010

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* In addition, Rs. 684 crores are expected to be made available from Railway Depreciation Reserve Fund.

** Includes Rs. 35 crores for border roads in Gujarat and Rajasthan.

@ Expenditure on Farakka Barrage project was kept outside the Plan.

@@ Includes Rs. 40 crores to be found from depreciation funds of the air corporations. Earlier figure of Rs. 73 crores is exclusive of contribution from this source.

RAILWAYS

9. For carrying the total traffic of 308 million tonnes and allowing for reserve capacity available at the beginning of the Fourth Plan and also for operational improvements, the rolling stock programme of the railways during the Fourth Plan envisages a total procurement of 2177 locomotives, 163,250 wagons in terms of four-wheelers and 9282 coaching vehicles. In the table below details of rolling stock are given along with additions made during the Third Plan.

Table 3. Railway rolling stock programme

(numbers)

	procurement during Third Plan	estimated requirements for Fourth Plan
locomotives-		
steam	1129	590
diesel	545	882
diesel shunters	7	100
electric	183	605
total	1864	2177
wagons (in terms of 4-wheelers)	144789	163250
coaching stock—		
coaches	7362	8225
rail cars		200
electric multiple units	657	857

The present annual production of wagons is about 34,000 in terms of four-wheelers. Taking into account export requirements, production envisaged for 1970-71 is 40,000 wagons. Production of broad gauge steam locomotives at Chittaranjan is to be scaled down progressively from the current level of 137 to 47 by 1970-71, by which year capacity will have been developed for 150 diesel locomotives at Varanasi and an equivalent number of electric locomotives at Chittaranjan. Capacity for producing 30 diesel shunters will also be developed at railway workshops. Dieselisation and electrification programmes are being viewed together. On sections which are proposed eventually to be doubled and electrified with a view to meeting the requirements of heavy density traffic, dieselisation may be introduced in the initial stages to be replaced later by electrification. Diesel traction will also be employed on single and double line trunk and important routes carrying increasing densities of traffic at levels which are beyond the range of steam traction but not high enough to justify electrification. On double line sections, where traffic density is very high and is expected to increase further, priority is being given as far as possible to electrification. The railway programme for the Fourth Plan provides for doubling a total length of 3100 kilometres including 1370 kilometres carried over from the Third Plan. Centralised traffic control and automatic signalling will be expanded to 1200 kilometres of track and automatic train control devices to 650 kilometres of track.

10. The Fourth Plan provides for a limited programme for the construction of new lines. It is proposed to complete 2200 kilometres of new lines including 1775 kilometres of lines carried over from the Third Plan. Provision has also been made for the conversion of 450 kilometres of metre gauge lines into broad gauge. This includes completion of conversion works begun during the Third Plan. In view of the heavy investments involved in the construction of new lines, it is necessary to consider each proposal carefully, having regard to the needs of traffic and possibilities of development of alternative forms of transport, more especially road development and road transport. As the Committee on Transport Policy and Coordination has recommended, in studying the economic potential of a region, the role of transport and the design of the transport sector as a whole should be considered carefully in terms of the relative contribution and sequence of different services. Road communications and rail and road transport services have to be thought of together as complementary services and incorporated into a single integrated plan of development. *Prima facie*, in future, the extension of the railway network will be directed mainly towards meeting the needs of basic and heavy industries and of traffic in minerals like coal and iron ore.

11. In addition to expenditure of Rs. 684 crores from the depreciation reserve fund, the Fourth Plan provides for an outlay of Rs. 1410 crores. The main components of this amount are as follows :

Table 4. Outlays for railway development programme

(Rs. crores)

programme	Third Plan	Fourth Plan
rolling stock	541·24	823
electrification	81·53	99
doubling	185·29	232
other line capacity works	128·00	133
gauge conversion	10·90	72
new lines	212·97	161
track renewals	236·15	260
other works	280·90	314
total	1676·98	2094
deduct expenditure from the depreciation reserve fund	353·70	684
Plan outlay	1323·28	1410

The Railway Board have estimated the cost of programmes corresponding to a traffic target of 308 million tonnes at Rs. 1522 crores in addition to a contribution of Rs. 700 crores from the depreciation reserve fund. It will be necessary, therefore, to keep railway development programmes under constant review and to provide such further outlays as may be justified by the actual requirements of traffic. The present proposals of the Railways do not include any provision for the fifth or the sixth steel plant. Railway requirements connected with these steel plants will be assessed after decisions on the locations of the plants are taken.

12. In drawing up their development proposals for the Fourth Plan, the Ministry of Railways have kept in view the objective of attaining self-sufficiency in regard to their requirements. The programme of dieselisation and electrification is based on indigenous production of locomotives, allowing only for imports on a steadily diminishing scale of components and materials. The Railways also propose to set up a factory for manufacturing electric signalling equipment. The foreign exchange requirements of the railways in the Fourth Plan are estimated at Rs. 370 crores which will be largely in the form of non-project imports.

ROADS

13. The Fourth Plan makes a provision of Rs. 760 crores for development of roads. Of the total outlay, Rs. 400 crores are allocated for National Highways and for certain other roads and bridges in the Central sector. This outlay is distributed as follows :

Table 5. Outlays for Central road programmes

	(Rs. crores)
national highways	
(*i*) spill-over from the Third Plan	50
(*ii*) new national highways	10
(*iii*) development of existing national highways	166
other roads and bridges, including lateral road, inter-State roads, etc.	174
total	400

Road development programmes of the States for which a provision of Rs. 360 crores has been made will be finalised when their proposals under the Fourth Plan are considered in detail. On present estimates the Central and State road programmes are expected to add about 50,000 kilometres of surfaced roads in the course of the Fourth Plan.

14. Roads have a critical role in national and regional development. The gaps left over from the past are very large indeed. Despite progress

made on several routes, there are numerous missing links, unbridged river crossings, weak bridges and culverts and weak and inadequate road pavements. At the end of the Third Plan, the national highways system will have no less than 100 kilometres of missing road links, more than 50 major bridges still to be built, nearly 18,000 kilometres of one-lane roads, a number of narrow and weak culverts and bridges and other deficiencies. Road crusts originally meant to carry mainly light traffic are unable to stand the heavier traffic and the greater volume of movement which have developed in recent years. The country is still far from having an integrated road network and therefore it is necessary that a connected view should be taken of programmes for the development of national highways, State highways, inter-State roads and other communications. Rural roads need to be given a distinctly higher priority than in the past.

15. In formulating programmes for the Fourth Plan, it is important to adopt economic criteria to the maximum extent possible and to select major road projects after careful benefit-cost studies on an assessment of traffic expected to be handled in future. There are four important aspects of road development which will need special attention in formulating future plans. These are (a) provision of roads related to major industrial, mining and other development projects, (b) rural market roads, (c) roads for the development of backward areas and regions including hill areas and coastal areas and (d) road systems in metropolitan areas and large cities and their environs. It will also be necessary to make adequate provision of funds for maintenance of existing roads. The formulation and execution of road development programmes will call for strengthening of organisations at all levels.

ROAD TRANSPORT

16. To meet the requirements of road traffic referred to earlier, a large programme of expansion in the road transport industry has to be carried out during the Fourth Plan. In the main, this is a programme to be undertaken in the private sector. The role of the public sector is limited to a measure of expansion of passenger services operated by State undertakings, the setting up of an inter-State transport corporation jointly by the Central Government, the Railways and the States to operate goods services on important inter-State routes and in regions of strategic importance, and assistance to transport cooperatives in certain areas. The Fourth Plan provides for an outlay of Rs. 65 crores in the public sector and reckons on a total investment of Rs. 630 crores in the private sector. State road transport undertakings, which operated about 35 per cent of passenger services at the end the Third Plan, are expected to account for nearly 40 per cent by the end of the Fourth Plan. If the large estimates

of traffic requirements indicated earlier are to be met in time, there is imperative need for carefully prepared plans in terms of needs to be met in different regions, both for goods and for passenger traffic. Specific programmes will have to be worked out to assist the road transport industry in the private sector to organise itself on a sound commercial basis. The Committee on Transport Policy and Coordination has recommended that small operators should be helped to join together to form viable units and cooperative transport undertakings should be actively promoted as a matter of public policy when traffic conditions are specially favourable for this type of organisation. The Committee has also recommended that legislation be undertaken for the formation at the State and regional level of associations of transport operators with specific functions and responsibilities. Such associations could undertake to provide common facilities for booking and forwarding of goods, workshops for repairing and servicing of their vehicles and purchase and supply of spare parts and accessories and other requisites etc. Arrangements for the financing of the road transport industry are being investigated by a study group set up by the Ministry of Transport and Aviation. Questions relating to the taxation of road transport are also being studied at present by a special committee.

PORTS

17. The programmes drawn up by the major ports for the Fourth Plan have been examined in detail in consultation with the port authorities. These programmes entail a total investment of Rs. 234 crores. On present assessment, with appropriate adjustments in rate structure and possible economies in operating costs, the port authorities are expected to find about Rs. 72 crores from their own resources for financing their development programmes in the Fourth Plan. Under the Plan, in addition to the resources of the ports, Rs. 145 crores have been allotted for development programmes of major ports. Further detailed study is necessary for working out the phasing of projects and specific proposals for increasing operational efficiency and developing internal resources. It is important that each major port should have long range plan of development extending to at least 10 or 15 years. These plans should be supported by more adequate economic studies and projections than have been available in the past.

18. For the development of intermediate and minor ports, the Fourth Plan makes a provision of Rs. 25 crores. This includes Rs. 10 crores in the States and Rs. 15 crores at the Centre.

INLAND WATER TRANSPORT

19. Comparatively small progress has been made during the first three Plans in the development of inland water transport.

Progress in the Fourth Plan will aim at putting the potential of waterways in a number of regions to productive use, more especially in Assam and in Kerala. Development of waterways needs to be viewed as an integral part of the overall transportation system of each region. Plans for inland water transport should provide not only for development and maintenance of waterways, but also for the organisation of commercial services and for coordination with other transport services. A provision of Rs. 13 crores has been made in the Fourth Plan—Rs. 8 crores at the Centre and Rs. 5 crores in the States.

SHIPPING

20. Over the next ten years, Indian shipping should endeavour to secure at least one-half of the country's overseas trade. This will require an overseas fleet of about 4·5 million grt. During the Fourth Plan, besides replacing obsolete tonnage aggregating to about 200,000 grt, a net addition of about 1·5 million grt is envisaged. At the end of the Fourth Plan, the total tonnage in operation should be around 3 million grt, with orders upto 500,000 grt to be met in the early years of the Fifth Plan. While some expansion in the liner trade is anticipated, the principal directions in which it is necessary to ensure accelerated growth are bulk carriers, tramps and tankers. Of the total addition of 1·7 million grt, including replacement, on present estimates, about 200,000 grt should be available from indigenous resources. The coastal fleet which has now a strength of 323,000 grt, is likely to reach the level of about 400,000 grt during the Fourth Plan. However, it is hoped to take measures to increase its efficiency and to replace existing overaged ships by modern and more economic vessels.

21. The total cost of shipping development programme in the Plan is estimated at Rs. 267 crores. Since ships to be procured from abroad are expected to be acquired on deferred payment basis, the total payments over the period of the Plan including payments against past commitments are estimated at Rs. 140 crores. About Rs. 50 crores are expected to be provided from the balances available in the Shipping Development Fund and the resources of the Shipping Corporation of India and a provision of Rs. 90 crores is made in the Plan for advances to the Fund.

LIGHTHOUSES

22. A provision of Rs. 7 crores has been made for the development of lighthouses. The programme provides for establishment of 24 lighthouses and 22 light beacons, besides installation of modern equipment at some of the existing lighthouses. The setting up of a factory for the manufacture of lighting equipment within the country is also under examination.

CIVIL AIR TRANSPORT

23. For the development of air transport, the Fourth Plan provides Rs. 118 crores. About Rs. 32 crores have been allocated to the Department of Civil Aviation for constructing new aerodromes, improving existing aerodromes to meet the operational requirements of modern aircraft and strengthening aeronautical communication services. The available capacity in tonne kilometres of the Indian Airlines Corporation is expected to increase from 155 to 342 million and of Air India from 338 to 594 million. The revenue tonne kilometres performed are expected to go up from 108 to 213 million in the case of the Indian Airlines Corporation and from 155 to 290 million in the case of Air India. Air India's development programmes provide for purchase of five sub-sonic jets and also take into account the possibility of ordering super-sonic aircraft. The Indian Airlines Corporation proposes to acquire six aircraft of Caravelle type, seven aircraft to replace Viscounts and Skymasters, 15 aircraft to replace Dakotas and 15 smaller aircraft for feeder routes.

24. The total provision under the Fourth Plan for the two corporations is Rs. 86 crores which includes expenditure to be met by the corporations on depreciation account.

METEOROLOGY

25. A provision of Rs. 7 crores has been made for the development of meteorological services. The more important schemes for the Fourth Plan include modernisation and expansion of observatories, laboratories and workshops and development of facilities for weather forecasting especially for aviation and shipping, climatology and agricultural meteorology, geophysical and allied activities and rocket and satellite meteorology.

MANAGEMENT AND COORDINATION

26. In earlier Plans, the principal emphasis was on expansion of transport services and provision of adequate capacities. In view of the growth of the economy and the larger demands on the transport system, these aspects will continue to receive attention. At the same time, efforts will be made under each mode of transport to improve management, secure higher levels of efficiency and reduce costs. Studies of the Indian Airlines Corporation, the Shipping Corporation, the Delhi Transport Undertaking, the Visakhapatnam Port and coastal shipping operations which have been completed or are under way suggest that closer attention to management aspects in all sectors of transport will bring a larger return on investment in transport, will help reduce costs of transport and will generate resources for further development much beyond present levels.

27. A programme of economic studies has been initiated by the Joint Technical Group for Transport Planning to enable plans for different modes of transport being drawn up on an integrated basis so that the transport system as a whole may function as a composite network and the community's requirements for transport can be met at minimum cost to the economy. The Group has undertaken studies of the present and future patterns of movement of several bulk commodities such as iron ore, coal, petroleum products, limestone, cement, manganese ore, salt, finished steel, tea and jute. A series of regional transport surveys are at present under way. These studies are expected to throw up data which will provide the basis for drawing up detailed programmes in the Fourth Plan and also long term plans for the development of transport covering the period of the Fifth Plan for the country as a whole as well as for different regions.

COMMUNICATIONS

28. The Plan includes provision of Rs. 235 crores for communications of which Rs. 214 crores are provided for telecommunications (including postal services), Rs. 8 crores for Indian Telephone Industries, Rs. 9 crores for Overseas Communications Service and Rs. 4 crores for the Hindustan Teleprinters Ltd., and Wireless Planning & Coordination. In addition, the Posts and Telegraphs Department are expected to find about Rs. 200 crores from their own resources towards the cost of their development programmes in the Plan.

29. *Telecommunications*.—The demand for telephone facilities has been expanding rapidly on account of several factors such as expansion of industry and commerce and growing urbanisation in the country. During the Third Plan, 4·1 lakh telephones were added, giving a total of 8·7 lakh connections at the end of the Plan. The programme for the Fourth Plan provides for installation of 6·5 lakh additional telephone connections, the equipment being produced at the existing factory at Bangalore. In order to meet the requirements of long distance transmission equipment, it is proposed to establish a new factory during the Fourth Plan period.

30. The programme for trunk telephones provides for installation of 28 trunk automatic exchanges and 2000 public call offices during the Plan period. It is proposed to meet the increasing demand for trunk telephones between important stations by extension of subscriber to subscriber dialling services to main automatic exchanges and to a number of small automatic exchanges. Provision has been made for completion of the carry-over schemes for laying coaxial cables and microwave on different routes. It is proposed to add 8500 kilometres of coaxial cables and 8500 microwave links to the trunk network during

the Fourth Plan. Adequate circuit capacity with provision for alternate routing for interlinking Delhi, Bombay, Calcutta and Madras will also be provided.

31. For meeting the requirements of telegraph services, provision is made in the Fourth Plan for opening of additional 2000 telegraph offices and modernisation of the existing offices, introduction of teleprinter working on a wider scale and installation of general teleprinter exchanges in major centres for introducing circuit switching in telegraph network. It is proposed to introduce 4000 teleprinters in the telegraph offices where traffic justifies their use. The existing teleprinter exchanges will be expanded and the telex services will be extended to 50 additional stations. Provision is also made for 8000 voice frequency telegraph channels for strengthening of different routes for telegraph services.

32. *Overseas Communications Service.*—The demand for external telecommunication services has been growing and it is necessary to devise new means of telecommunication to supplement the existing high frequency radio spectrum which is becoming greatly congested. Development in two main directions is envisaged, namely, use of earth satellites and installation of submarine cables. India has joined the Global Satellite Communication System now being developed by a group of nations. Steps are being taken to set up a ground station in India for communication with the Global Satellite. Provision is also made for India's participation in the Commonwealth Cable System.

33. *Hindustan Teleprinters.*—In view of the growing demand for teleprinters for Posts and Telegraphs, Railways, Defence and Overseas Communications and other users, the capacity of Hindustan Teleprinters, Madras, is proposed to be expanded from 1000 machines in 1964-65 to 3000 machines in 1966-67 and to 8500 machines in 1970-71.

BROADCASTING

34. The proposals formulated by the All India Radio for the Fourth Plan involve a total outlay of Rs. 67·9 crores against which a provision of Rs. 45 crores is proposed for the present in the Plan. The main objectives of the programme for the Fourth Plan are: (1) strengthening of external services, (2) effective coverage of the border areas, (3) extension of coverage of regional services and (4) expansion of facilities for community listening all over the country.

35. As part of programme for the Third Plan for strengthening of external services, two high power short-wave transmitters are being set up at Aligarh and one super high power transmitter near Calcutta.

The proposals for the Fourth Plan envisage installation of two additional high power short-wave transmitters at Aligarh and one super power transmitter in Rajkot area. Provision has also been made for studio and programme originating facilities at Delhi to meet the requirements of external and news services.

36. By the end of the Third Plan, the medium wave coverage in the country extended to about 52 per cent of the area and 70 per cent of population. Proposals for the Fourth Plan provide for complete coverage of border areas and extension of the overall coverage in the country to about 82 per cent of the area and 85 per cent of population by the end of the Plan period. In formulating the programme for internal services special consideration has been given to the requirements of border areas and provision is made for a chain of additional high power medium wave transmitting stations with studio facilities for these areas. Besides, the existing transmitters at Jammu, Kohima, Imphal, Trichur and Port Blair are proposed to be strengthened. As far as possible, provision will be made for adequate coverage of the areas in which intensive agricultural development programmes have either been undertaken or are likely to be undertaken in the period of Fourth Plan. Special attention is to be given to the areas inhabited by tribal people and also autonomous hill districts of Assam which need broadcasting facilities in their own local languages. The proposals have been worked out in detail, keeping in view the recommendations made by the Committee on Broadcasting and Information Media. Under the programme for extension of community listening facilities to rural areas, it is proposed to supply at least one set to each of the 5·67 lakh villages in the country. Efforts are being made to ensure that development schemes for rural broadcasting will provide for satisfactory arrangements for maintenance of sets in each State.

37. The programme for television envisages strengthening of the existing centre at Delhi for extension of services to rural areas around Delhi upto a distance of about 200 kilometres by installation of a few subsidiary transmitters at different locations. Further, it is proposed to set up four additional centres, one each at Bombay, Calcutta, Madras and Kanpur during the Fourth Plan period. At these centres programme production facilities are proposed to be provided for service of about two to three hours daily.

38. Concerted efforts have to be made to organise manufacture of transmitters, television sets, community listening sets, low cost receivers and other broadcasting equipment within the country in order to ensure that foreign exchange requirements are progressively reduced during the Fourth Plan period. For speedy and efficient implementation of the programme in the Fourth Plan, proposals are

being formulated to strengthen the administrative organisations at the Centre as well as at the State and regional levels. The staff training school is proposed to be strengthened to meet the requirements of qualified engineers and operational staff during the Plan period.

TOURISM

39. The provision of Rs. 25 crores proposed for tourism includes Rs. 20 crores for programmes of the Central Department of Tourism and the India Tourism Corporation and Rs. 5 crores for programmes to be taken up as part of the State Plans. Details of tourism programmes are being worked out.

ANNEXURE I

Transport and Communications

Fourth Plan outlay compared with the outlay and expenditure in the Third Plan

(Rs. crores)

	Third Plan			Fourth Plan	
programmes	financial provision	cost of physical programmes	likely expenditure	as in Memorandum of Sept. 1965	proposed outlays
transport					
railways . . .	890	940	1323	1310	1410
roads . . .	272	324	445	730	760
road transport . .	25	26	27	65	65
ports . . .	86	105	91	153	170
farakka barrage .	..	..	*	50	65
shipping . . .	57	58	41	90	90@
inland water transport	7	9	3	13	13
lighthouses . .	6	6	4	6	7
civil air transport . (including meteorology)	55	55	50	73	125†
tourism . . .	8	8	6	25	25
total-transport .	1406	1531	1990	2515	2730
communications . .	73	88	118	213	235
broadcasting . . .	7	11	8	40	45
grand total .	1486	1630	2116	2768	3010

*Expenditure on Farakka Barrage was kept outside the Plan.

@Figures of outlays relate to advances to be given by Government to the Shipping Development Fund. Programme will be financed partly through the balances available in the Fund and the resources to be contributed by the shipping companies including the Shipping Corporation of India.

†The outlay of Rs. 125 crores includes Rs. 40 crores to be found from depreciation funds of air corporations. Earlier figure of Rs. 73 crores is exclusive of contribution from this source.

ANNEXURE II

Transport and Communications

Targets of development for the Fourth Plan and targets achieved in the Third Plan

programme	unit	Third Plan		Fourth Plan
		targets	achievements	targets
railways				
freight traffic	million tonnes	249	205	308
roads				
surfaced roads	000 kms	276	284	334
road transport				
commercial vehicles on the road				
buses	000 numbers	80	70	100
trucks	,,	285	250	425
total	,,	365	320	525
major ports				
traffic	million tonnes	50[1]	50	82·5
shipping				
tonnage	lakh grt	10·4	15·4	30·0
civil air transport				
Air India—available capacity	million tonne-kms	not specified	338	594
Indian Airlines—available capacity	,,	not specified	155	342
communications				
post offices	000 numbers	94	98	110
telephone connections	,,	763	873	1523
public call offices	,,	10·4	10·1	12·1

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[1] The target of capacity of major ports (excluding Mormugao) as indicated in the Third Plan was 50 million tonnes. The estimates of traffic for 1965-66 and 1970-71 are inclusive of traffic at Mormugao.

CHAPTER XVI

EDUCATION

I

GENERAL APPROACH

EDUCATION as an investment in human resources, plays an important role among the factors which contribute to economic growth. It secures returns in the form of skilled manpower geared to the needs of development and also creates the right attitudes and climate for development. It exposes the farmers and workers to new ideas, stirs their ambition and bends them to change. It seeks to create an environment of discipline, harmony, understanding and team work which is conducive to the implementation of production plans. Both for accelerating economic development and for improving the quality of the society which we are trying to create, it is essential that planning should establish a firm and purposive link between education and development.

2. It is true that during the three previous plan periods there has been a substantial expansion in enrolment at all levels of education in India as will be evident from Annexures I and II. The expansion of numbers has, however, been accompanied by a certain measure of deterioration in quality. The Indian educational system has not been sufficiently geared to economic development, especially at the primary and secondary levels, insufficient attention having been paid to vocational and agricultural education. Girls' education has still a long way to go before it can catch up with that of boys', while certain parts of the country are significantly lagging behind others in respect of both boys' and girls' education. Stagnation and drop-outs at the primary levels have resulted in a considerable wastage of resources devoted to this sector of education, while the high proportion of failures and third classes at the university stage, especially in regard to Pass courses, bears evidence of the need for improvement in quality. It is obvious that in the immediate future larger and more effective attention has to be paid to factors like consolidation, quality, diversification, terminalisation, and work orientation than has been the case so far.

3. The Fourth Plan attempts to face three major tasks in the field of education : to remove the deficiencies in the existing educational system and link it more effectively with the increasing demands of social and economic development, to remove internal stresses and

strains in the educational system which have developed in consequence of rapid expansion during the first three Plans, and to extend the system in response to social urges and economic needs. Investment in education will seek to obtain better returns by avoiding waste and improving the quality of its content. High priority will be given to the training of technical personnel. The emphasis at the elementary stage will be on free and universal primary education, elimination of wastage, and work orientation of the curriculum. At the secondary stage, the provision of vocational education of a terminal character and the strengthening of science teaching will receive special attention. At the post-matric and university stages, the emphasis will be on diverting students to vocational, technical and professional channels and on extending facilities for science and post-graduate teaching and research work. The quality of teaching will be improved with greater insistence on the training of teachers and by linking increases in their salaries to improvement in qualifications. Research in curricula and methods of teaching will be intensified. Particular emphasis will be laid on extending adult education and functional literacy as an instrument of economic development. Book production in Indian languages will receive greater attention. Loan scholarships will be provided on a large scale as a step towards the democratisation of education. It is intended that every student of merit should be able to study up to the highest level and poverty should not stand in his way. Special attention will be paid to the education of members of the scheduled castes and scheduled tribes. The technology of education will be improved to secure better results at less cost by insisting on large-sized institutions, utilisation of the buildings, libraries and laboratories for longer hours, part-time and correspondence courses, etc. Efforts will be made to mobilise local resources for providing mid-day meals to school children, constructing school buildings, developing school improvement programmes, etc. and to establish a close relationship between the school and the community.

II

PROGRAMMES AND POLICIES

PRE-SCHOOL EDUCATION

4. Pre-school education has largely been left to private initiative. Although it is an important area, Government can assume only limited responsibility in view of the dearth of resources and the large scale effort required to provide for compulsory primary education. It is, therefore, proposed to confine governmental attention to certain strategic areas, such as training of teachers, production of teaching materials and evolving methods suitable to Indian conditions.

ELEMENTARY EDUCATION

5. Primary education, as an important area of education in a developing country, enables children to acquire literacy and to retain it in adulthood besides cultivating in them the capacity to acquire skills and develop a proper attitude to work and towards production. The efforts made so far reveal that there has been a very significant increase during the last 15 years in the number of children going to school. Between 1950-51 and 1965-66, their number has risen from 19 million to about 52 million (estimated) in Classes I to V and from 3 million to 11 million in Classes VI to VIII. Although a special effort is still necessary to bring them up to the level of the rest of the population, it is encouraging that the enrolment of scheduled caste and scheduled tribe children has increased at a faster rate than before. Similarly, the gap between the enrolment of boys and girls has been narrowing. The proportion of house-holds sending children to school is, however, still low among the poorer sections of the rural society. The increase in enrolment has also not been uniform over all the States. Sixty per cent of the children in the 6-14 age-group, who do not attend school are centralised in six States, *viz.*, Jammu & Kashmir, Uttar Pradesh, Bihar, Orissa, Madhya Pradesh and Rajasthan. The content and quality of primary education also needs to be improved all over the country.

6. The targets of expansion for elementary education are as follows :—

Enrolment Targets for Elementary Schools

(enrolment in million)

stage/age-group	1960-61 (actual)	1965-66 (likely achievement)	1970-71 (targets)	additional 1961-66	additional 1966-71
primary (6-11)					
classes I-V					
enrolment . .	34·99	51·50	69·50	16·51	18·00
percentage of age-group	62·2	78·5	92·2		
middle (11-14)					
classes VI-VIII					
enrolment . .	6·70	11·00	19·00	4·30	8·00
percentage of age-group	22·5	32·2	47·4		

In spite of the appreciable rise in the number of children going to school, we will still be far from fulfilling the constitutional directive of free and compulsory education for all children up to the age of 14. This goal is not expected to be achieved before 1981. However, as an effective step towards it, great emphasis will be placed on the reduction of drop-outs which is as high as 60 per cent in primary classes. Several measures are envisaged to achieve this objective, such as better organisation of the schools, free supply of text books and extension of the mid-day meal programme. The massive programme of adult education envisaged during the Fourth Plan will also go a long way to assist in motivating parents to keep their children in school. Adjusting school hours and vacations to agricultural operations like sowing and harvesting and modifying the curriculum to meet local needs should also be helpful. Provision of school buildings and introduction of two shifts in the first two classes wherever necessary, as well as maximization of space utilization by promoting multiple use of school buildings has also been planned. Greater attention will be paid to securing an increase in the enrolment of girls. This means that special steps will have to be taken to increase the supply of women teachers. A programme which will greatly facilitate this will be building of quarters for women teachers in the rural areas. Adult women with some education will be able to improve their educational qualifications through condensed courses and subsequently given professional training to work as teachers, midwives, etc. Basic education will be strengthened by developing carefully selected schools and introducing in other schools work-oriented curricula and citizenship training.

SECONDARY EDUCATION

7. As a result of the impact of rapid expansion in the elementary stage as well as the various concessions given to students of backward classes, the enrolment at the secondary stage increased from 1 million in 1950-51 to 5 million in 1965-66 (estimated). To provide for expansion needs, the following targets are being set :

Enrolment Targets for Secondary Education

(enrolment in million)

stage/age-group	1960-61 (achievement)	1965-66 (likely achievement)	1970-71 (targets)	additional	
				1961-66	1966-71
secondary (11-17)					
classes IX-XI					
enrolment . .	2·96	5·24	9·00	2·28	3·76
percentage of age group	11·7	17·8	22·1		

8. Secondary education is beset with a number of problems which need urgent attention. One of the major problems is that while at the end of secondary education large numbers have to enter life, they do not find themselves adequately equipped to do so, with the result that the number of educated unemployed on the live registers of employment exchanges has increased rapidly in recent years. Again, about 50 per cent of students appearing for the final examination fail to pass. This is indicative of the poor quality of teaching and the consequent

wastage at the secondary stage. Another major difficulty faced is the dearth of teachers in science, mathematics, English and diversified courses.

9. It is obviously essential to improve the quality of teaching in secondary schools and evolve a system which will prepare students for entrance to the university and also afford facilities for those who want to enter a definite vocation. This requires a diversified system of secondary education. The emphasis consequently will be on the provision of a large variety of courses including technical, commercial agricultural, etc. of a terminal character. How far these diverse courses can be offered in the same institution and to what extent they require the setting up of specialised institutions like junior agricultural, technical and vocational schools is a matter that is being further examined in the light of the recommendations of the Education Commission. It will also be necessary to make a study of the requirements of various types of middle level personnel in each State so that students can be guided regarding vocations likely to be available. There will be greater stress on science education. Science teachers will be encouraged to take correspondence courses and attend summer institutes thereby improving both their knowledge of the subject and their skill to teach it. The upgrading of high schools to higher secondary schools is proposed to be completed in those States which have already made significant progress in this direction. In other States, attention will be concentrated on improving the high schools. The existing multipurpose schools will be strengthened and research in various problems of secondary education expanded. To sum up, efforts will be made to re-orient our secondary education and devise a system that will prevent the current rush to the universities and, at the same time, give to the secondary school leavers a training which has an employment value and make them productive workers when they go out into the world.

GIRLS' EDUCATION

10. Sustained efforts to extend facilities for the education of girls have been made right from the First Plan. The gap between boys' education and girls' education has narrowed, but is still considerable as indicated in the following table :

Progress in Girls' Enrolment

(figures in million)

	enrolment in classes					
	I-V		VI-VIII		IX-XI	
	total	girls	total	girls	total	girls
1950-51 . .	19·15	5·38	3·12	0·53	1·22	0·20
1960-61 . .	34·99	10·96	6·70	1·47	2·96	0·53

Girl students as a percentage of their population in the relevant age group increased from 24·6 per cent to 56·2 per cent in classes I—V, 4·5 per cent to 16·7 per cent in classes VI—VIII, and 1·8 per cent to 7·8 per cent in classes IX—XI during the last 15 years. To narrow the gap further, programmes for accelerating girls' education at the school stage are being intensified. These measures include provision of teachers' quarters, special allowance for women teachers serving in rural areas, and building up a cadre of teachers from amongst adult women through the provision of condensed courses to upgrade their qualifications, the recruitment of school mothers, construction of hostels, etc.

UNIVERSITY EDUCATION

11. The expansion of universities and the increase in the number of persons enrolled in colleges and other institutions of higher education is a striking feature of the years since independence. Enrolment at the university stage in science, arts and commerce faculties has gone up from 0·3 million in 1950-51 to 1·1 million in 1965-66. While, during each of the first two Plans, the enrolment increased by 0·2 million, it is estimated to have risen by 0·4 million in the Third Plan. The targets of university education in the Fourth Plan are as under :—

Enrolment Targets at the University Stage

(enrolment in million)

stage/age-group	1960-61 (achievement)	1965-66 (likely achievement)	1970-71 (target)	additional	
				1961-66	1966-71
university/collegiate (17-23)@					
enrolment (Total) .	0·7	1·10	1·60	0·40	0·50*
percentage of age-group . . .	1·5	1·9	2·4		
enrolment in science courses . .	0·19	0·44	0·80	0·25	0·36

12. It is proposed to take steps to slow down the number of persons enlisting for arts and commerce courses and expand facilities for science, agriculture, technical (particularly diploma level) and medical education. The limitation in numbers will be effected by raising the qualifications for admission, arranging correspondence courses, multiplying terminal courses at the secondary stage, and by discouraging the opening of sub-standard affiliated colleges. Improvement of

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*Includes 0·05 million students to be educated through correspondence courses.

@Arts, Science and Commerce subjects (excluding Intermediate students).

facilities, incentive to teachers to improve their qualifications, provision of better text-books and summer institutes for improving the skill and knowledge of teachers, are expected to raise the general level of teaching. Facilities for post-graduate education and research will be increased, particularly in science subjects. No new universities are contemplated during the Fourth Plan period. Instead, preference will be given to the setting up of university centres for post-graduate studies, each embedded in a complex of colleges with a large enrolment. Such centres will have adequate laboratory facilities, libraries and a nucleus of university teachers. It is also proposed to link the Institutes of Rural Higher Education with development programmes in rural areas through suitable adjustment of courses and admissions.

TEACHER EDUCATION

13. An important sector of post-secondary education is the training of teachers for elementary as well as secondary schools. Most of the challenges which face Indian education today are experienced in tackling the problem of teacher preparation : fast increasing numbers and the consequent strain on the available facilities as well as the rapidly growing demands of socio-economic development on the education system. Further, it is necessary to take into account the recent advances in pedagogic techniques, the changing character of the school population, the new curricula, and the role of teachers in promoting national integration and the development of democratic practices.

14. The number of school teachers increased from 750,000 in 1950-51 to 2 million (estimated) in 1965-66. The number of trained teachers during the same period increased from 430,000 to 1·4 million, raising the percentage of trained teachers from 57 to 70. However, the number of untrained teachers went up simultaneously from 320,000 to 600,000. Acute shortage of teachers was also experienced in certain subjects like science, mathematics and technical and vocational courses. The rapid expansion of training institutions has also outstripped the provision of physical facilities, libraries, laboratories, buildings, etc. The quality of teachers also needs serious attention.

15. In the Fourth Plan the additional requirements of teachers are estimated to be 779,000 (500,000 for additional enrolment and 279,000 for replacement at the rate of 3 per cent) for the elementary stage and 209,000 (152,000 for additional enrolment and 57,000 for replacement at therate of 4** per cent) for the secondary stage. To meet

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*Replacement at the secondary stage has been taken at a higher rate in view of the fact that a large number of teachers leave for alternative employment.

these additional needs as also to clear the backlog of untrained teachers, recourse will be had not only to the creation of more facilities for whole-time teacher education, but also to the institution on a large scale of correspondence and short-term courses. Correspondence training has some shortcomings, but there appears at present no other way of meeting the situation. The Plan provides for correspondence courses for 140,000 elementary teachers and about 17,660 secondary teachers. For whole-time trainees, additional places will be found largely by expansion of existing institutions rather than by opening new ones. Attempt is being made to estimate the requirements of teachers both Statewise and by subjects and qualifications and efforts will be made to meet the shortage by increasing the output in the appropriate fields from the universities and other institutions of higher education. Short-term courses will be organised to help teachers improve their knowledge of particular subjects. The universities, State Institutes of Science Education, State Institutes of Education, summer institutes, correspondence courses, etc. will be utilised for this purpose. Research will be encouraged in curricula and teaching methods in a continuous effort to improve programmes of teacher training. A more intimate connection will be established between teacher training institutions and universities and the universities will be encouraged to set up departments of education. Incentives in the form of cash awards and special increments in salaries are being provided in the Plan for teachers to enhance their academic and professional qualifications.

16. An important step towards improvement will be the setting up of large sized comprehensive pedagogic institutes where teachers of different disciplines, both for the elementary and secondary schools, will receive education. Such institutions will bring the training of secondary and elementary teachers under one roof and will remove the artificial barrier between different categories of teachers and help in building up sound traditions for the profession. Large institutions will be in a position to employ well paid staff and provide the other facilities necessary for good teacher education on an adequate and economic scale. They will also help to raise elementary teacher training to the level of a university discipline.

TECHNICAL EDUCATION

17. Technical education has expanded rapidly during the three plans as already indicated in Chapter-VII. At the end of the Third Plan, facilities exist for an annual admission of 24,700 students for degree courses and 49,900 students for diploma courses in the several branches of engineering and technology. In addition, 4000 seats for degree

courses and 3400 for diploma courses have been approved. The annual outturn from these facilities is expected to meet the likely demand for engineering graduates and diploma holders in the Fourth Plan. At the Degree level, it is estimated that the demand for the Fifth Plan would also be largely met and no large scale expansion is considered necessary during the Fourth Plan.

18. The rapid expansion of facilities during recent years has severely strained the resources of existing institutions. A survey in 1964 revealed that engineering colleges and polytechnics had an overall shortage of 35 per cent in teachers, 53 per cent in equipment, 51 per cent in instructional buildings and 55 per cent in hostels. As a result, there is a high rate of wastage, particularly in the polytechnics. It is proposed now, as a first priority, to make up these deficiencies and consolidate the existing institutions by providing essential physical facilities like buildings, equipment and hostels, ensuring the availability of qualified teachers and bringing about closer integration of engineering education with industrial requirements.

19. In order to ensure that a sufficient number of qualified teachers are available, facilities for post graduate education and research would be expanded and teachers already in service helped to improve their educational qualifications. It is expected that 3500 places would be available for these courses in selected engineering colleges by the end of the Plan. It is also proposed to take measures to stimulate the exchange of personnel between industries and educational institutions. Engineers working in industries would be encouraged to participate in teaching for specified periods, while teachers would be provided opportunities to get first hand knowledge of industrial techniques by accepting short-term assignments there.

20. In regard to expansion of facilities, as already stated, the probable demand for graduates in the Fifth Plan is expected to be met by the outturn from existing institutions. There is likely to be, however, some demand for specialists in new branches for meeting the requirements of new industries. Provision is being made for the examination of specific demands of this type and for the establishment of appropriate training facilities. Thus, an additional annual admission capacity of 1300 students only is included in the proposal for the Fourth Plan. A view has, however, been expressed that the annual admission capacity should be raised and that this may require the setting up of new engineering colleges in the Fourth Plan. This is being gone into by a high powered Committee including some State Ministers and appropriate changes, if necessary, will be made in the Plan for technical education. The additional facilities provided at

present are by expansion of selected existing colleges and institutes. This will assist in economising expenditure on equipment and buildings and also facilitate better utilisation of some costly equipment and provide for the required inter-disciplinary collaboration especially for specialised courses.

21. At the Diploma level, admission capacity is proposed to be increased in the Fourth Plan by 18,100† to ensure the growth of the pool of engineering manpower as indicated in Chapter VII. The targets for annual admissions to degree and diploma courses in engineering and technology at the end of the Fourth Plan would be as follows :

Enrolment targets for Technical Education

admission capacity	1965-66	1970-71 (total)	1966-71 (additional)
degree courses (nos.)	24700	30000	5300*
diploma courses (nos.)@	49900	68000	18100†

22. At the Diploma level, additional facilities will be created both by expanding existing institutions and establishing new ones. The new institutions will be coordinated with the existing as well as developing industrial centres in the country. Such coordination with industrial complexes will ensure, for technical education, the cooperation of industries and facilities for practical work in large factories. This is necessary not only to give technical institutions the appropriate environment but also to facilitate cooperative education and linking of technical training with employment. It is also considered necessary that, at this level, there should be diversification of training facilities to cover the entire range of middle level technicians.

23. The plan lays emphasis on the development of part-time and correspondence courses to provide opportunities for study to those who have had to leave full-time educational institutions to enter employment. In organising these courses, it would be ensured that standards are maintained at the same level as in full-time education. Arrangements would be made for laboratory work and workshop practice in selected technical institutions under a programme of on-campus study.

24. To prepare high level management personnel, two institutes of management had been started at Calcutta and Ahmedabad during

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@Includes admission capacity in the polytechnics for girls.

*This includes 4000 seats already approved in the Third Plan, but not provided by March, 1966.

†This includes 3400 seats already approved in the Third Plan but not provided by March, 1966.

the Third Plan. These conduct full time courses o two year's duration leading to the degree of Master of Business Administration. By the end of the Third Plan, the intake capacity of both the institutes was 300. To meet the increasing demand for managerial personnel, it is proposed to increase the admission capacity of these institutes. In addition, management instruction on a part-time basis was being provided in selected universities like Bombay, Delhi and Madras. During the Third Plan, more universities and technological institutions have started similar courses. Some of the universities have also started a full time course in business administration. Mention must also be made of the activities of the National Productivity Council and the All India Management Association as well as the courses offered in the Administrative Staff College, Hyderabad. It is also proposed to offer short-term and correspondence courses in modern techniques and methods of management for the benefit of the large number of small entrepreneurs. It is necessary to take an integrated view of the facilities being provided in the country as a whole from all those institutions, and link them more functionally with requirements. This will be taken up before the completion of the final report.

SOCIAL EDUCATION

25. Widespread illiteracy is a real handicap in the way of both economic and social developement. This has not been adequately attended to in the past and has led to various problems. Though literacy* increased from 17 per cent in 1951 to 24 per cent in 1961, the number of illiterates also increased within this period from 298 million to 334 million due to the increase in population. In the Fourth Plan it is proposed to launch a mass adult literacy movement which should help increase production both in the factory and on the farm.

26. Adult literacy will need to be made functional in character and linked up with the work and life of the people so that it serves as a tool for rural development. Particular emphasis will be laid

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*Percentage refers to total population.

"The test for literacy in the Census of 1961 was satisfied if a person could, with understanding, both read and write. The test for reading was ability to read any simple letter either in print or in manuscript. If the person could read one of the examples in the enumerator's handbook with facility, he was taken to have passed the test for reading. The test for writing was ability to write a simple letter. To qualify for literacy, a person was not required to pass any standard examination. On the other hand, literacy was recognised as something a man still possessed and actively put to use and it was in this general practical sense that it was uniformly applied. The results are thus comparable from area to area. If a person could both read and write and had also passed a written examination or examinations as proof of an educational standard attained, the highest examination passed was to be recorded."—Census of India—1961, Vol. I—page XIV.

on retention and utilisation of literacy. Recognising the importance of follow-up measures to make literacy effective, provision is being made for libraries in the rural areas and for large-scale book production suited for neo-literates in different languages. Stress will be laid on the mobilisation of public co-operation in covering the first stage of literacy on the lines of the Gram Shikshan Mohim tried out in Maharashtra. Attention will also be paid to the training of literacy workers and library personnel, opening of adult schools and night classes especially for low income groups in industrial areas and establishment of workers' education colleges.

27. The problem of adult education and functional literacy is so vast that it is not likely to be solved unless it is tackled at the level of political and popular leadership. This could be provided by the setting up of a National Adult Education Board and corresponding State Boards. These Boards could take steps to organise the programme on a campaign basis, elicit non-official support from all possible quarters and provide the necessary inter-departmental coordination.

DEVELOPMENT OF LANGUAGES

28. The question of development of Indian languages has become urgent. It is necessary that they grow rapidly in richness and functional efficiency and become effective means of communicating modern knowledge. Simultaneously steps need to be taken to establish effective inter-communication between them. With these objectives in view, it is proposed to set up one institute for each principal language, which will conduct research in the language, encourage production of literature and prepare encyclopaedias, lexicons and other reference material. Universities will also be encouraged to expand and develop their departments of modern Indian languages.

29. In pursuance of Article 351 in the constitution which declared Hindi as the official language of the Union of India, various schemes for its propagation and development were initiated. These programmes included establishment of Hindi teachers' training colleges and provision of qualified Hindi teachers for schools in non-Hindi speaking States, grants-in-aid to voluntary organisations and individuals for the propagation and development of the language, preparation of books and other reading materials in Hindi, etc. These programmes are being considerably stepped up. Attention will also be given to the development of Sanskrit through assistance to Pathshalas, award of scholarships, etc.

PREPARATION OF TEXT BOOKS

30. Another problem needing urgent attention is that of text books. The present position is very unsatisfactory from the point of view of content, presentation, printing and binding. At the university stage and in technical institutions, the need of good books is met to some extent by imports from foreign countries and publication of cheap Indian editions of some well known foreign books. At the school stage, there is a real dearth of good books. The National Council of Educational Research and Training and the State Governments will attend to this. A National Book Development Council is being constituted which is also expected to assist in this programme.

PHYSICAL EDUCATION

31. The programme will include provision for physical education in all secondary schools, equipping schools and colleges with sports equipment and building gymnasia and stadia. Facilities which have so far been confined to urban areas are now proposed to be extended to rural areas. Local contributions towards amenities for physical education will be encouraged. The National Institute of Sports and the National College of Physical Education will be further developed. Programmes under the National Fitness Corps, which has already passed the pilot stage, are proposed to be extended throughout the country. Social service camps, campus works projects, youth hostels, scouts and guides, etc. will also be encouraged.

CULTURAL AND OTHER PROGRAMMES

32. The programmes proposed under this head pertain to the Archaeological Survey of India, the Akademies, Indology, museums, cultural scholarships, gazetteers, etc. These are mostly continuing schemes. A scheme where new ground is sought to be broken is to acquaint the school and college students, and through them the people in general, with our cultural heritage through the publication and distribution to selected high/higher secondary schools and colleges/universities, archaeological albums, prints of Indian paintings, plaster casts of Indian sculpture and selected records of Indian classical music.

Programmes for improving facilities for audio-visual education and educational research and training are also envisaged.

SCHOLARSHIPS

33. Scholarships constitute an important means of equalising opportunities and encouraging talent. Expenditure on scholarships and other concessions to students has been increasing steadily from year to year. It rose from Rs. 2·75 crores in 1950-51 to Rs. 20 crores

in 1960-61 and is estimated to have gone up to Rs. 35 crores in 1965-66. Of the total enrolment at various stages of education, scholarship holders at the end of the Third Plan are estimated to form 2·8 per cent at the middle stage, 8 per cent at the secondary stage and about 18 per cent at the post-matric stage, including technical education institutions.

34. During the Fourth Plan, the outlay on scholarships will be further increased to Rs. 54 crores under secondary, university and technical education and another Rs. 15 crores under agricultural and medical education. As a result, the annual expenditure on scholarships and other concessions to students will rise to nearly Rs. 57 crores by 1970-71.

35. The scholarships will be given largely as loans. The repayment will be in easy annual instalments spread over a number of years after the students have completed the studies and started earning. It is suggested that a national autonomous organisation be set up for the administration of this programme. The organisation will coordinate the various scholarship programmes in the country. It will receive funds from the Government as well as donations from the public. It will follow up the educational careers of scholars and offer them the necessary guidance from time to time. It is felt that the new organisation will have the necessary flexibility and speed, as well as prestige to act as the focus of a national endeavour in this important field.

EMOLUMENTS AND SERVICE CONDITIONS OF TEACHERS

36. The quality of education is largely determined by the skill and ability of the teachers who man various institutions. No system of education can rise above the quality of its teachers. It is important that their status in society should be suitably recognised and they should be paid emoluments comparable to those earned by persons with similar qualifications in other professions. It is, however, felt that the general rise in the salaries of the teachers should be in the normal budget as in the case of other Government servants. .One has, however, to encourage a constant desire among the teachers to study and improve their qualifications. Provision, therefore, has been made in the Plan for incentive payment to the teachers who improve their qualifications.

EDUCATIONAL ADMINISTRATION

37. Despite a phenomenal increase in the range and dimensions of educational activities at all stages, the structure of educational administration has undergone little change during the last fifteen years.

It is necessary, therefore, that the machinery of educational administration should be expanded both quantitatively as well as qualitatively, to ensure efficient implementation of the expanded educational programmes. The strength of the inspectorate should be related to the number of schools in a particular area. Further, to improve the quality of instruction at the secondary stage, the appointment of subject specialists for supervisory duties is envisaged. The statistical and planning machinery at the Centre and the States will also be strengthened. An autonomous organisation for administering scholarships and a National Board to review the progress and advise on Social Education have been mentioned already. A suitable machinery for correspondence courses is also under consideration.

III

OUTLAYS AND TARGETS

38. The proposed expansion in educational facilities will call for a considerable investment and organisational effort. An outlay of Rs. 1210 crores is being provided for carrying out the above tasks. The outlay envisaged in the Fourth Plan is nearly 20 per cent more than the expenditure in all the three Plans put together and is more than double the expenditure in the Third Plan. The distribution of the proposed public sector outlay is indicated below :

	(Rs. crores)
elementary education	322
secondary education	243
university education	175
teacher education	92
technical education	253
social education	64
cultural programmes	15
miscellaneous (general education)	46
total	1210

39. The above outlay will involve construction of buildings worth about Rs. 320 crores. This will call for careful planning of school buildings and laboratories, so that they are economic in construction and functionally more effective. Greater public cooperation in the provision of buildings and equipment is also envisaged.

40. The provision of adequate equipment and facilities is an important pre-requisite for improvement in quality. A substantial increase in outlay under this programme has, therefore, been included. The equipment component in the Fourth Plan is worth about Rs. 150 crores, which is about three times as large as that in the Third Plan. This includes laboratory and workshop equipment of roughly Rs. 80 crores involving Rs. 60 crores of foreign exchange. Steps are being taken to build indigenous production capacity to meet this demand.

41. The achievements during the previous three plans and the target for the Fourth Plan in physical terms relating to the principal programmes are summarised below :—

Programme	unit	1950-51	1960-61	1965-66		1970-71
		achievement	achievement	target	likely achievement	target
elementary education						
A. primary stage (classes I-V) enrolment	million	19·15	34·99	50·29	51·50	69·50
percentage of the age-group 6-11	%	42·6	62·2	76·4	78·5	92·2
B. middle stage (classes VI-VIII) enrolment	million	3·12	6·70	10·16	11·00	19·00
percentage of the age-group 11-14	%	12·7	22·5	29·8	32·2	47·4
secondary education (classes IX-XI)						
enrolment	million	1·22	2·96	4·61	5·24	9·00
percentage of the age-group 14-17	%	5·8	11·7	15·7	17·8	22·1
university education						
enrolment	million	0·30	0·73	1·10	1·10	1·60*
percentage of the age-group 17-23	%	0·7	1·5	1·9	1·9	2·4
technical education (admission capacity)						
A. diploma course	nos.	5900	25,800	37,390	49,900**	68,000
B. degree course	nos.	4120	13,820	19,140	24,700**	30,000

*This includes 0·05 million students to be educated through Correspondence Courses

**Sanctioned capacity for diploma course is, however, 53,300 while it is 28,700 for degree course.

The Report of the Education Commission

42. The Education Commission was appointed by the Government of India in July, 1964 to advise on the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects. The commission has recently submitted its report, but so far only a summary has been made available to the public. A perusal of this shows that in many areas the recommendations of the Commission are broadly in line with the thinking outlined in this chapter. When the full report becomes available, it will be carefully considered and such modifications will be made in the programme as may be considered necessary.

ANNEXURE I

Progress in the number of students at schools and colleges 1950-51 to 1965-66

(figures in million except V (below)

stage and age-group	1950-51 (actuals)	1955-56		1960-61		1965-66	
		target	achievement	target	achievement	target	achievement
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I *primary* (6-11)/*classes I-V*							
enrolment	19·15	28·55	25·17	32·90	34·99	50·29	51·50
% age of age-group	42·6	60·0	52·9	58·5	62·2	76·4	78·5
II *middle stage* (11-14)/*classes VI-VIII*							
enrolment	3·12	@	4·29	5·58	6·70	10·16	11·00
%age of age-group	12·7		16·5	18·7	22·5	29·8	32·2
III *secondary* (14-17)/*classes IX-XI*							
enrolment	1·22	@	1·88	2·65	2·96	4·61	5·24
%age of the age-group	5·8		7·8	10·5	11·7	15·7	17·8
IV *university education* (17-23) (arts, science and commerce)							
enrolment (excluding intermediate)	0·30	@	0·52		0·73	1·10	1·10
%age of the age-group	0·7		1·1		1·5	1·9	1·9
V *technical education* (admission capacity)							
diploma (no.)	5,900	@	10,480	20,530	25,800	37,390	49,900
degree (no.)	4,120	@	5,890	11,140	13,820	19,140	24,700

@No targets were laid down.

ANNEXURE II

Educational facilities for the Children in different classes

(enrolments in lakhs)

sl. no.	state/union territory	classes I to V 1955-56	classes I to V 1960-61	classes I to V 1965-66	classes VI-VIII 1955-56	classes VI-VIII 1960-61	classes VI-VIII 1965-66	classes IX-XI 1955-56	classes IX-XI 1960-61	classes IX-XI 1965-66
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Andhra Pradesh	23·59 (56·7)	29·76 (68·3)	37·29 (75·7)	3·09 (13·5)	4·08 (16·9)	6·53 (25·1)	1·82 (8·4)	1·96 (8·7)	2·72 (11·4)
2	Assam	88·15 (59·4)	11·26 (67·7)	15·09 (75·8)	1·46 (21·9)	2·20 (25·8)	3·15 (31·2)	0·68 (11·6)	1·26 (16·8)	2·02 (22·4)
3	Bihar	17·81 (35·7)	31·84 (50·7)	43·60 (59·8)	2·77 (10·3)	5·35 (17·1)	7·78 (20·3)	1·43 (5·9)	3·28 (12·1)	5·09 (15·1)
4	Gujarat	15·03 (66·5)	20·30 (72·0)	28·31 (87·5)	2·20 (18·1)	3·87 (26·3)	6·11 (35·7)	0·97 (8·6)	1·71 (13·1)	2·60 (16·5)
5	Jammu and Kashmir . . .	1·26 (24·7)	2·10 (46·7)	3·43 (72·8)	0·33 (11·9)	0·59 (24·4)	0·94 (36·4)	0·15 (5·5)	0·22 (10·0)	0·28 (11·6)
6	Kerala	19·73 (109·1)	24·32 (110·0)	28·99 (116·8)	3·81 (36·8)	6·61 (55·4)	9·48 (70·9)	1·95 (19·5)	1·77 (16·3)	3·70 (45·5)
7	Madhya Pradesh	14·00 (40·9)	19·96 (48·8)	27·30 (53·6)	1·70 (9·3)	3·17 (15·5)	5·84 (23·3)	0·50 (3·0)	1·24 (6·8)	2·29 (10·5)
8	Madras	25·74 (66·4)	33·33 (85·4)	58·34 (132·4)	4·66 (21·3)	6·91 (31·6)	14·31 (61·5)	1·94 (9·3)	2·68 (12·9)	4·60 (20·9)
9	Maharashtra	30·04 (66·5)	34·49 (77·3)	54·04 (92·2)	4·39 (18·1)	7·48 (27·8)	12·51 (40·2)	1·93 (8·6)	3·38 (14·0)	6·44 (22·1)
10	Mysore	15·78 (57·8)	21·68 (73·8)	32·89 (93·9)	2·47 (16·5)	3·63 (22·4)	4·95 (28·1)	1·29 (9·2)	1·69 (11·2)	3·77 (23·2)
11	Orissa	6·51 (34·9)	14·11 (63·7)	19·07 (76·8)	0·72 (7·2)	1·06 (9·5)	3·12 (23·4)	0·31 (2·9)	0·45 (4·2)	1·31 (10·8)
12	Punjab	12·25 (56·6)	14·57 (51·4)	27·54 (85·2)	3·07 (25·8)	4·38 (29·3)	6·18 (35·5)	1·25 (11·3)	1·60 (12·2)	2·60 (16·8)
13	Rajasthan	5·36 (24·2)	11·15 (40·9)	18·65 (58·0)	1·07 (9·0)	2·07 (14·5)	4·00 (24·1)	0·45 (4·1)	0·85 (6·7)	1·62 (10·9)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
14	Uttar Pradesh	28·05 (33·5)	40·93 (44·7)	68·00 (63·5)	6·36 (14·0)	8·68 (16·9)	13·80 (25·0)	2·17 (7·6)	4·53 (11·3)	7·80 (15·5)
15	West Bengal	24·68 (73·6)	29·27 (64·9)	41·88 (78·0)	3·78 (19·4)	5·18 (21·7)	8·10 (29·9)	1·72 (9·1)	2·18 (10·1)	4·18 (17·1)
16	A. and N. Islands . . .	0·02 (63·3)	0·044 (62·9)	0·094 (100·0)	0·003 (4·6)	0·005 (14·3)	0·017 (42·5)	0·001 (5·0)	0·002 (5·7)	0·009 (11·5)
17	Delhi	1·86 (78·4)	2·72 (79·1)	4·11 (95·8)	0·68 (48·5)	1·07 (58·5)	1·83 (78·2)	0·25 (18·6)	0·53 (31·4)	1·07 (48·4)
18	Goa, Daman and Diu . . .	N.A.	N.A.	1·00 (123·5)	N.A.	N.A.	0·20 (45·5)	N.A.	0·05 (12·05)	0·09 (18·4)
19	Himachal Pradesh . . .	0·60 (47·4)	0·84 (50·9)	1·45 (79·7)	0·11 (16·4)	0·20 (23·0)	0·34 (34·7)	0·03 (5·2)	0·05 (6·8)	0·12 (13·3)
20	Manipur	0·35 (42·4)	0·57 (52·3)	0·89 (65·4)	0·08 (19·7)	0·15 (27·3)	0·26 (38·2)	0·04 (10·9)	0·07 (14·6)	0·10 (16·9)
21	Nagaland	N.A.	0·39 (83·0)	0·71 (134·0)	N.A.	0·07 (26·9)	0·12 (41·4)	N.A.	0·02 (9·0)	0·03 (11·5)
22	Tripura	0·61 (62·2)	0·87 (55·4)	1·37 (72·4)	0·10 (19·2)	0·15 (19·7)	0·29 (33·0)	0·03 (7·3)	0·05 (7·7)	0·11 (13·9)
23	L. M. and A. Isles. . . .	0·02 (69·6)	0·034 (103·0)	0·052 (144·4)	0·003 (12·0)	0·0032 (17·9)	0·01 (52·6)	— —	— —	0·003 (14·7)
24	N.E.F.A.	0·07 (6·2)	0·055 (26·2)	0·162 (33·1)	0·005 (0·9)	0·008 (5·7)	0·02 (7·7)	0·007 (1·5)	0·002 —	0·01 (4·6)
25	Pondicherry	0·19 (49·6)	0·31 (73·8)	0·45 (93·7)	0·03 (13·9)	0·071 (30·9)	0·113 (47·1)	0·007 (3·4)	0·028 (13·3)	0·05 (21·3)
	total	251·78 (52·9)	349·90 (62·2)	515·00 (78·5)	42·89 (16·5)	67·00 (22·5)	110·00 (32·2)	18·80 (7·8)	29·60 (11·7)	52·40 (17·8)

NOTE.—Figures within brackets indicate percentages of children enrolled to population in the relavant age-group.

CHAPTER XVII

SCIENTIFIC RESEARCH

PROGRESS OF EXPENDITURE

THE following table shows the progress of both plan and non-plan expenditure under the head "Scientific Research", in the Council of Scientific and Industrial Research, the Department of Science in the Ministry of Education, and the Department of Atomic Energy in each plan period.

Table 1.—Expenditure in First, Second and Third Plans and Outlays in the Fourth Plan.

plan period	plan	Rs. crores non-plan	total
First Plan (1951-1956)	14	6	20
Second Plan (1956-1961)	33	34	67
Third Plan (1961-1966)	75	70	145
total (1951-1966)	122	110	232
Fourth Plan (1966-71)	140	130	270

2. Expenditure on Research and Development (R and D) has increased very rapidly having more than doubled during each five year period. The estimated expenditure of Rs. 270 crores during the Fourth Plan period would be substantially higher than the total expenditure of about Rs. 230 crores which had been incurred during the 15-year period (1951-1966) of the three previous five year plans.

3. In addition to the three agencies mentioned above, several other ministries in the Government of India have under them scientific organisations with research responsibilities. The total expenditure for programmes for these organisations is estimated to be about Rs. 160 crores of which Rs. 70 crores would be the plan outlay. The total expenditure on research and development as a whole would be about Rs. 430 crores during the Fourth Plan.

4. At a rough estimate the R and D expenditure in the last year of each of the three previous plan periods was about Rs. 8 crores, Rs. 25 crores, Rs. 60 crores respectively ; and is likely to be about Rs. 100 crores or so at the end of the Fourth Plan. The R and D expenditure expressed as a percentage of the gross national product, which is called the research ratio, is estimated at about 0·06 per cent, 0·16 per cent, 0·26 per cent, and 0·35 per cent at the end of the four successive five year plan periods respectively.

(Figures include R and D expenditure in the Department of Atomic Energy which was outside the First and the Second Plans).

EVALUATION OF RESEARCH AND DEVELOPMENT ACTIVITIES

5. Much has been achieved in science and technology but much more remains to be done. Large capacities have been built up and more would be established during the Fourth Plan. It is necessary to utilise these facilities effectively for the promotion of economic growth. With rapidly increasing expenditure on research and development, evaluation of programmes and results in relation to economic needs is becoming particularly important.

6. The aim of basic research is to seek fuller knowledge or understanding of the subject under study, and publication of results is essential. Basic research of high quality is an end in itself in satisfying intellectual curiosity, and is also indispensable for the building up of the scientific tradition and for the training of research personnel for the future. In advanced countries, basic research and the training of research personnel is carried out mostly in association with higher education. In India basic research, particularly in association with higher education and training, has not been receiving adequate support and is relatively weak. Some distinguished work is being done but a good deal of the work under the name of basic research would require attention. There is need to give discriminating support on the basis of high quality of work.

7. 'Applied research' is directed towards the practical application of the results of basic research and, when successful, would lead to 'development' which is directed towards the production of useful materials, devices and methods, including the design and development of prototypes and processes. In the advanced countries, excluding military research and development, which is financed by Government, the greater part of the total expenditure on non-military research and development is directed to economic ends, is incurred within industry, and is financed by industry itself, through the ploughing back of a part of the additional profits generated by research and development. This feed-back arrangement has been mainly responsible for the rapid increase of expenditure on non-military R and D in recent years in a number of countries including Japan.

8. In India applied research has absorbed the greater part of the R and D expenditure without, however, leading to design and development in a sufficiently large measure. There is very little research and development within industry whether in the public or in the private sector. The share of the expenditure on research and development within industry often comes to 60 per cent or 70 per cent of the total non-military R and D expenditure in the advanced countries while in India its share is only about 5 per cent. In consequence, research

and development has not made adequate contributions to economic growth so far. India remains weak in design and development, and much too dependent on the import of foreign design and technical knowledge.

9. Basic research is intrinsically open-ended with a free time programme. Projects of applied research, and even more so, of design and development, must have specified objectives, time schedules, and some idea of expected benefits in relation to costs. Projects in India are, however, not always formulated in this way which makes evaluation difficult or impossible and leads to waste of resources. Sustained efforts must be made to have proper specification of projects for applied research and development together with periodic evaluation of the results.

IMBALANCE IN RESEARCH AND DEVELOPMENT

10. Some recent studies have shown that there are large disparities between different institutions and subject fields in respect of capital and current expenditure and particularly of foreign exchange. Higher education and technological institutions and non-government research institutes have suffered good deal in this regard.

11. At a very rough estimate, the number of R and D scientists and technologists may have increased from about 9,000 at the end of the Second Plan to about 15,000 at the end of the Third Plan. There is danger of such a high rate of expansion weakening the quality of work because it takes several years of experience to gain some proficiency in research. In any case, to maintain a high rate of growth of research it is necessary to initiate a long-term programme of training for research personnel in association with basic research.

12. Present facilities for the training of research personnel are however, inadequate partly because of the weakness of basic research in higher educational and training institutions, and partly because of lack of instruments, accessories, equipment, stores and other facilities. It is, therefore, necessary to make some special provision for strengthening scientific research in association with the training of research personnel.

13. An overwhelmingly large number of R and D personnel are working in Government laboratories, in most cases without adequate contact with either higher educational and technological institutions or with industrial establishments. The research staff in higher technological or educational institutions have little contact with industry; while the number of R and D staff within industry itself is very small.

14. An important task during the Fourth Plan would be to utilise as large a part as possible of the R and D staff and facilities in Government agencies and in higher educational and technological institutions to promote research, design and development within, or in collaboration with, industrial establishments in both public and private sectors. It is also necessary for scientists in government and other research agencies to participate in the activities of educational and technological institutions.

15. It has been mentioned earlier that the research ratio in India in 1965-66, the last year of the Third Plan, was over 0.25 per cent. The total research ratio is much higher in the advanced countries, for example, it is about 3 per cent in the United States or 2·5 per cent or so in the United Kingdom and USSR, and between 1 per cent and 2 per cent in other advanced countries. If the military R and D is excluded, the research ratio even in the most advanced countries would be below 1·5 per cent or 1 per cent ; of which the greater part (between about 50 per cent and 70 per cent) is within industry (compared with only 5 per cent in India). If the expenditure on military and industrial R and D is excluded, the research ratio in the advanced countries would fall to the level of something between 0·2 per cent and 0·5 per cent.

SOME SPECIAL NEEDS

16. The present research ratio of over 0·2 per cent in India, representing the civilian R & D outside industry, is already of the same order as the research ratio in many advanced countries for the same type of R and D activities. To increase R and D expenditure for purposes of economic growth it is essential to bring research and development into industry close to production.

17. In comparison with advanced countries, the gross national product (GNP) in India being lower, the same research ratio, that is, the same fraction of GNP, would make available, for the same number of R and D staff, a much smaller amount of money per R and D scientist. The cost of instruments, equipment, stores, etc., much of which have to be imported, would be higher. To provide similar facilities for research it would be, therefore, necessary to have an proportionately higher research expenditure in India.

18. Vigorous efforts must be made to develop rapidly the manufacture of instruments, equipment and accessories required for research and industrial purposes. A progressive instruments industry is an indispensable condition for a self-reliant economy.

19. A brief reference may also be made to a basic issue. The attempt to attract Indian scientists from abroad by setting up the Scientists Pool in the C.S.I.R. was only partly successful. Many or most of the abler scientists did not come back. Although personal factors must have been responsible for some of the scientists not returning to India, this could not have been the only reason. Also, many Indian scientists continue to take up posts abroad every year. Evidently, whatever be the reasons, a career in scientific research in India is not yet sufficiently attractive.

20. Research and development to promote the best utilisation of domestic resources and to stimulate competitive efficiency of production are, however, essential requirements for a self-reliant economy and independence. How to make scientific research sufficiently attractive to men of talent and ability, and how to use applied research and development to promote economic growth are the two crucial problems to which continuing thought will have to be given.

OUTLAY AND PROGRAMMES

21. The outlay proposed for the three agencies, the Atomic Energy Department, the Council of scientific and Industrial Research, and the Scientific Department of the Ministry of Education, is Rs. 120 crores which is equal to the total plan outlay spent during the previous three plan periods taken together. In addition, a provision of Rs. 15 crores has been made for strengthening scientific research in association with the training of research workers, and another provision of Rs. 5 crores for the support of high priority programmes in connection with food, import substitution and export promotion, especially within, or in collaboration with, industry. The proposed outlay for research in the Fourth Plan is given below :

Table 2. Provision under the "Scientific Research"

	(Rs. crores)
department of atomic energy	50
council of scientific and industrial research	46
department of science, ministry of education	24
scientific research and research training	15
priority research and development programmes	5
total	140

22. It is proposed that efforts in the Department of Atomic Energy would be directed mainly to the atomic power programme with special emphasis on import substitution of hardware, maintenance and replacement parts, and on the use of atomic energy for other peaceful purposes.

23. The Council of Scientific and Industrial Research would give highest priority to projects for food, import substitution and export promotion. It would also try to promote research and development within industry in both public and private sectors through the active collaboration of its own staff with industrial enterprises and the establishment of cooperative research associations.

24. The Survey of India would be strengthened for the systematic preparation of maps as essential pre-requisites for hydro-electric power, irrigation, flood control, minerals development, etc. Anthropological, botanical, sociological and other scientific activities of the department of Science, Ministry of Education, would concentrate on the consolidation and utilisation of development schemes taken up in the Third Plan.

25. The need of a long term programme of training for research personnel has been stressed. Such training can be given most effectively in association with basic research in higher educational and technological institutions. A special provision of Rs. 15 crores would be used for this purpose to give selective financial support, on merit, to individuals, projects, or institutions to strengthen basic research in science and technology associated with research training in any subject field independently of existing administrative channels or institutional affiliations. The present provision of Rs. 15 crores would also be used to correct disparities which have arisen through imbalances in the allocation of resources and lack of adequate support of non-government institutions and scientists.

26. A provision of Rs. 5 crores has been made to give support to high priority projects of applied research and development relating to food, import substitution and export promotion especially within or in association with industrial enterprises in both public and private sectors. The question of a suitable machinery for carrying out the administration of the above two programmes is under consideration.

PLANNING OF SCIENTIFIC RESEARCH AS A WHOLE

27. The advance of science and technology is marked by increasing specialisation through the emergence of new subject fields and, at the same time, by increasing integration through the strengthening of interconnections between different subject fields. An advance in one subject or in instrumentation may have large repercussions on research programmes in other fields. Also, research in the same or overlapping subjects has to be done in different Ministries, agencies and industrial enterprises. Planning of scientific research as a whole is, therefore, necessary for the maximum utilisation of available resources.

28. The Study Group for Scientific Research of the National Planning Council has recommended the planning of scientific research as a whole, and stressed the need of keeping open multiple channels of support for scientific research. The Estimates Committee of Lok Sabha recommended early in 1966 that arrangements should be made for the planning of research as a whole especially directed to economic needs and for the review and appraisal of research programmes and results.

29. Planning of research and evaluation of programmes and results would have to be undertaken not only by one single body but at many different levels. At the national level, planning would be concerned with policy, aims and objectives, priorities for allocation of resources, future supply of research personnel and equipment, and also with over-all evaluation of results. Further consideration of programmes and evaluation of results would be the responsibility, at successive levels, of the concerned Ministries, Departments, Agencies (A.E.D., C.S.I.R., U.G.C., etc.) and then of individual laboratories and operating units. Two way flow of information and consultation would be indispensable for which committees and working groups with overlapping spheres of interest would have to be set up at different levels.

30. Divergent views often arise among scientists regarding very expensive projects in different and competing subject fields, such, as large optical or radio telescopes, high energy accelerators, space research, etc., such questions, for lack of a common denominator, cannot be settled by discussions at a purely scientific level but has to be decided at government level. The important point in the case of such issues is to ensure that all divergent views among scientists receive due consideration by persons responsible for making final decisions.

CHAPTER XVIII

HEALTH, FAMILY PLANNING AND WATER SUPPLY

I

HEALTH

THE programme for the expansion of medical and public health facilities has been set within the framework of the long-term targets suggested by the Health Survey and Planning Committee of 1961. Stress has been laid on augmenting training facilities for different categories of medical personnel. The aim is to overcome the current shortages of qualified personnel and, at the same time, improve the medical and public health services. The targets for the Fourth Plan together with the Second Plan and Third Plan achievements are given in Annexure I.

2. Public health and medical programmes have been divided into five broad groups. The outlays for each group are indicated in the table below:

	outlay adopted (Rs. crores)
medical education, training and research	178·30*
control of communicable diseases	86·68
medical care, including hospitals, dispensaries and primary health centres	181·00
other public health services	36·02
indigenous systems of medicine	10·00
total	492·00

A more detailed table is given in Annexure II. As in other sectors, priority has been given to spillover schemes from the Third Plan in order to ensure that continuity is maintained and that better returns are obtained.

MAIN FEATURES OF THE PROGRAMMES

3. Efforts are being made to provide an effective base for our health services by strengthening the primary health centres. These will meet the medical needs of the people by providing preventive and curative health services, take over the maintenance phase of mass control programmes like malaria and smallpox, become the focal point for the family planning programme and serve as a link between

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*In addition, a provision of about Rs. 17 crores is included within a provision of Rs. 95 crores suggested for family planning programmes for the training of medical and public health personnel.

the people and the health administration. Sub-divisional and district hospitals will have cases referred to them by primary health centres and will provide the location points from which the mobile services will cover the surrounding areas. Expansion of medical education and training facilities will also meet the minimum technical manpower requirements of the Fifth Plan. It is intended to intensify the campaigns against communicable diseases which sap the health and efficiency of our people.

MEDICAL EDUCATION, TRAINING AND RESEARCH

4. Training programmes for medical personnel have made notable advances during the last fifteen years and are ahead of original targets. The number of colleges increased from 30 in 1950-51 to 57 in 1960-61. As against a target of 75 by the end of the Third Plan, 87 medical colleges have been established. Annual admissions to medical colleges have risen from 2500 in 1950-51 to 5800 in 1960-61 and to 10,625 in 1965-66. This expansion during the Third Plan is partly the result of measures undertaken to step up the number of admissions and to meet the needs of the national emergency. In spite of this large increase, the doctor-population ratio has remained more or less constant at the approximate level of 1:5800 mainly due to the accelerated rate of growth of population.

5. In the Fourth Plan, it is proposed to increase the number of medical colleges from 87 to 112. This is expected to improve the doctor—population ratio to 1:4600 from 1:5800 at the end of the Third Plan period. Out of the 25 new medical colleges that are proposed to be established, five will be regional institutions to be set up by the Government of India in the Central sector. The total number of doctors is estimated to increase to 1·31 lakhs by the end of the Fourth Plan.

6. A major impediment in the expansion of medical education is the dearth of qualified teachers for medical colleges. In most medical colleges, the shortage has ranged from 25 to 45 per cent. Additional teaching staff will be required in the 25 new medical colleges and the new postgraduate institutes. About 4000 specialists will be needed for providing specialised treatment in district hospitals and polyclinics. At present only four post-graduate institutes exist at Delhi, Calcutta, Pondicherry and Chandigarh. Two more post-graduate institutions at Bombay and Hyderabad are expected to start functioning shortly. The State governments will also provide post-graduate courses in some departments of the existing medical colleges. They will be strengthened for the purpose. It is proposed to encourage the establishment of full-time teaching units in medical colleges, as recommended by the Health Survey and Planning Committee.

NURSES' TRAINING

7. The number of nurses available by the end of the Second Plan was estimated at 27,000; this number has increased to 45,000 at the end of Third Plan. This gives a nurse-doctor ratio of roughly 1:2 against the desirable norm of 3:1. Taking into consideration the existing conditions, it will only be possible to increase the annual intake from 8000 at present to 18,500 at the end of the Fourth Plan.

8. In the reorganised pattern of primary health centres, each sub-centre with a population of 10,000 will have an auxiliary nurse-midwife. Keeping in view the requirements of primary health centres and urban areas for maternal, child health and family planning programmes, it is proposed to provide training facilities for an additional number of 60,000 auxiliary nurse-midwives during the Fourth Plan, thus bringing up the total number to 95,000.

PARA-MEDICAL PERSONNEL

9. The experience of the three Plans has shown that non-availability of trained para-medical personnel in adequate numbers has slowed down the implementation of health programmes. Provision has, therefore, been made for the training of health visitors, health inspectors, pharmacists, laboratory technicians, radiographers, X-ray technicians, physio-therapists and occupational therapists.

CONTROL OF DISEASES

MALARIA

10. Measures adopted for the eradication of malaria have resulted in a marked decline in its incidence. The proportional case rate has now come down from 10·8 per cent in 1953-54 to 0·05 per cent in 1965. This shows a reduction of 99.5 per cent. There are at present 393·25 National Malaria Eradication Units operating in the country in different phases, namely the attack phase (spraying), the consolidation phase (during which spraying is withdrawn and surveillance starts) and the maintenance phase (during which vigilance services for the detection of fever cases and examination of blood slides will become the responsibility of the normal health staff). At the end of the Third Plan, about 52 per cent of the population of the country has entered the maintenance phase. Another 30 to 40 per cent will reach the maintenance phase by the second year of the Fourth Plan. The remaining 10 to 20 per cent of the population, situated mostly in border tracts, will continue to be in the attack phase.

11. During the Fourth Plan, it is estimated that a provision of Rs. 19·21 crores will be required. By the end of the Fourth Plan, 370 units will go into the maintenance phase, leaving 19·5 in the consoli-

dation phase and four units in the attack phase. An important step for completing the National Malaria Eradication Programme according to schedule is to establish primary health centres with adequate staff, buildings and equipment. Without this, the vigilance service during the maintenance phase of the programme, based on domiciliary visits once a month by basic health workers to detect fever cases, and to take blood slides, cannot be carried out under proper supervision.

SMALLPOX

12. The National Smallpox Eradication Programme was started in 1962 with special eradication units in all the States. Nearly 83 per cent of the country's total population has been protected so far. The impact of this coverage is to be seen in the marked reduction in the incidence of small-pox during the last two years. It is, however, a matter for concern that in even some of those districts, where more than 80 per cent coverage has been reported, mild incidence of the disease has been reported. This implies that there is still a gap in the effective coverage of sizable groups of population, such as new-borns and those in the age group 0—4, who have escaped pimary vaccination, and the floating population residing in slums who have not been effectively vaccinated.

13. Maintenance is vital as smallpox can be eradicated only if there are no indigenous cases for three successive years after the attack phase and if any out-break from an imported case is quickly controlled.

14. For the indigenous production of freeze-dried small-pox vaccine, four institutes have been set up with WHO/UNICEF assistance. Two of these have already started manufacturing vaccine of an international standard. More equipment will be needed to enable these institutions to turn out 160 million doses each year, to meet the requirements of the maintenance phase.

TUBERCULOSIS

15. An effective campaign for the control of tuberculosis calls for BCG vaccination; the establishment of TB clinics and training and demonstration centres; the expansion of domiciliary services and the isolation and treatment of all cases in special TB hospitals. BCG vaccine is now being manufactured in the country in adequate quantities. So far 221 million persons have been tested and 81 million vaccinated. There are, at present, 425 TB clinics and 34,500 TB beds. Against a target of 5 TB training and demonstration centres, 8 centres have been established during the Third Plan period.

16. The proposals for the Fourth Plan include establishment or upgrading of 200 TB clinics, setting up of 4 TB training and demonstration centres, supply of drugs, setting up of a limited number of beds

for isolation and surgical treatment and a well-knit training programme. An addition to the control programme will be the establishment of four regional centres for guidance, implementation, and supervision of TB centres and for coordinating their activities.

LEPROSY

17. Modern drugs, especially sulphones, can now control leprosy by intensive as well as mass-scale treatment. Emphasis in leprosy control has, therefore, shifted from institutionalisation to case-detection and out-patient treatment with sulphones. During the Third Plan, the programme was reorganised on the basis of experience of the First and Second Plans. Survey, education and treatment (SET) centres were introduced. Each SET centre is attached to a primary health centre, a dispensary or a hospital and covers a population of about 20,000. The basis of approach for the control of leprosy will be to detect cases and treat them. This will prevent the transmission of the disease. By converting the highly infectious cases into non-infectious ones, the quantum of infection will be reduced. It is proposed to establish 100 leprosy control units, 2000 SET centres and 6 training centres for non-medical assistants under the Fourth Plan.

TRACHOMA

18. Trachoma is a communicable disease which has done incalculable harm, because it has been responsible for a major proportion of cases of blindness. This problem was brought into sharp focus during the emergency when volunteers to the Armed Forces had to be rejected because of this disease. Priority has been given to the States in which the prevalence of trachoma is more than 50 per cent. These include Punjab (79·1 per cent), Rajasthan (74·3 per cent), Uttar Pradesh (68.1 per cent) and Gujarat (56·0 per cent).

CHOLERA

19. An expert committee of the Indian Council of Medical Research has pointed out that there are five endemic foci in the deltaic regions of the principal rivers in West Bengal, Orissa, Andhra Pradesh and Madras. To prevent the frequent recurrence of cholera epidemics, it is necessary that the endemic foci are eliminated. This can be done with an adequate supply of safe water and with the introduction of modern methods of sewage disposal. While sanctioning water supply and sanitation schemes, priority has accordingly been given to these areas.

FILARIASIS

20. The extent of filariasis is considerable and the disease is gradually spreading to new areas. According to available information there are

about 220 towns where filaria exists in endemic form; of these 52 towns are hyper-endemic.

21. Provision has been earmarked, under water supply and sanitation progammes, for the provision of under-ground sewerage and sewage disposal facilities in areas endemic for filaria and for the provision of protected water supply in the cholera infested areas.

MEDICAL CARE

22. There were 8600 hospitals and dispensaries and 113,000 beds at the commencement of the First Five Year Plan. By 1965-66, their number increased to 14,600 and the number of beds to 240,100. While there has been considerable advance through the provision of additional beds in urban areas and through primary health centres, medical facilities are still not readily available, particularly in the rural areas. It is also difficult to maintain adequate standards in view of the shortage of medical personnel, equipment and other facilities.

23. The present bed-population ratio is 0·49 per thousand. In the Fourth Plan it is intended to add 60,000 beds. At the current rate of gowth of population, this will, at best, maintain the present bed-population ratio.

24. Primary health centres serve as focal points for providing comprehensive basic health services in rural areas. By the end of the Third Plan, it was intended to set up 5200 centres, at the rate of one in each community-development block. In March, 1966, about 4800 centres were working; the remaining 400 centres will be opened in the Fourth Plan. The primary health centres have to provide the basic framework for effective implementation of the maintenance phase of malaria and other communicable diseases and their eradication or control programmes and to serve as the main plank for carrying out Family Planning programmes in rural areas. Their staffing pattern has accordingly been reorganised.

25. It is also proposed to increase the number of sub-centres attached to each centre. One sub-centre will be provided for every 10,000 persons in the block, and each sub-centre will be looked after by an auxiliary nurse-midwife and a basic health worker. The auxiliary nurse-midwife will attend to maternal, child health and family planning programmes, while the male worker will deal with other health programmes.

MATERNAL AND CHILD HEALTH

26. The Maternal and Child Health Programme aims at providing domiciliary and institutional services in rural areas for ensuring safe

delivery and for motivating parents to limit the size of their families. With a view to regulating practice by untrained dais, it is proposed to register them during the Fourth Plan period. Other measures include free supply of vitamins and diet supplements like iron and calcium pills to expectant mothers and the immunisation of pre-school children against contagious diseases.

INDIGENOUS SYSTEMS OF MEDICINE

27. Programmes relating to indigenous systems of medicine, which were started in the Third Plan, will continue. These include research schemes, compilation of Ayurvedic and Unani Pharmacopoeia, establishment of a separate drugs control organisation for these systems of medicine, establishment of a Central medicinal plants garden at Poona, and the survey of medicinal plants in common use and known to be effective in curing common ailments. Another continuing programme is the post-graduate institute at Banaras Hindu University.

HEALTH INTELLIGENCE AND STATISTICS

28. Programmes for training biostatisticians and statistical assistants will continue. A provision has been proposed for the training of record officers and record technicians for the improvement of medical records and hospital statistics.

HEALTH LABORATORIES

29. In order to develop public health services, the Health Survey and Planning Committee have recommended that there should be a chain of laboratories adequately staffed and equipped in each State. In addition to the expansion of the existing laboratories, it is proposed to establish one principal, 76 regional and 200 district laboratories during the Fourth Plan period.

NUTRITION

30. The applied nutrition programme was taken up in 1962-63. Its aim was to increase production at the village level of nutritive foods like poultry, fish, milk, fruits and vegetables, and to provide facilities for training and education in the production, preparation and consumption of these foods. By the end of the Third Plan, the programme was in operation in 213 blocks. Its coverage will be extended to an additional 1000 blocks. Provision has been made for its implementation in the sector on Agriculture.

SCHOOL HEALTH

31. There is a nation-wide need for a school health programme. Ministries of Health and Education will jointly implement the programme with the help of teachers, parents, students and social workers.

The School Health Committee has *inter-alia* laid emphasis on the provision of mid-day meals and had recommended that this programme be developed rapidly with a view to improving nutritional standards and inculcating sound dietary habits. This scheme has made good progress during the Third Plan. In several States encouraging results have been achieved in mobilisation of local resources. Provision for continuing this programme will be made in the sector on Education. It is expected that local support from non-official and voluntary agencies such as panchayats, local bodies and child welfare organisations will be forthcoming in even greater measure.

32. The programme for the improvement in health of school children envisages their immunisation against preventable diseases, and scientific health education for students and teachers, about protected water supply, sanitary latrines and hygienic surroundings. It is proposed to provide facilities to school children and college students, at the time of their admission, for medical check up and for attention to remediable defects like errors of refraction, caries, skin diseases and emotional disturbances.

DRUGS AND MEDICAL SUPPLIES

33. The Third Plan envisaged a large increase in the production of drugs and the replacement of imported drugs and raw materials by indigenous manufacture. Some of the main developments in improving the quality of drugs were enforcement of the Drugs Act, establishment of machinery for supervision and control of drugs manufactured and of their distribution and sale. Production programmes for drugs and pharmaceuticals now envisage an increase in the output of essential drugs from Rs. 150 crores in 1965-66 to Rs. 250 crores by 1970-71. With the completion of anti-biotic and synthetic drug factories at Rishikesh and Sanatnagar, a substantial increase in output of essential drugs will be achieved. For instance, the production capacity of penicillin, streptomycine, tetracycline and sulpha drugs will increase from 100 million mega units, 90 tonnes, 20 tonnes, and 350 tonnes, at the end of the Third Plan to 250 million mega units, 300 tonnes, 290 tonnes and 1500 tonnes respectively by the end of the Fourth Plan.

34. At present the Medical Stores Organisation has five medical stores depots catering to the need of State hospitals, medical colleges, railway hospitals and other institutions. It is proposed to establish more medical stores depots. In addition, workshops will be set up for undertaking repairs and servicing of surgical instruments and appliances.

II

FAMILY PLANNING

GENERAL APPROACH

35. India's population according to the 1961 Census was 439·2 million. The estimated mid-year population of 1966 is 498·9 million. Improvement in public health has caused a sharp fall in the death rate without any significant change in the fertility rate. As a result, there has been a steady rise in the annual growth of population. It rose from 1·26 per cent per annum during the decade 1941—51 to 1·97 per cent per annum during 1951—61. The growth rate was estimated to be 2.4 per cent per annum during the period 1961—65. This rate of growth is expected to rise still further to 2·5 per cent per annum during the period 1966—70. Expectation of life at birth which used to be only 27 in 1920s and nearly 32 in 1945 is now reckoned at 50 years. With the all round improvement in health conditions, the death rate will fall still further and the expectation of life will increase. The rate of growth of population is bound to rise unless action is taken on a national scale to bring it down.

36. India's objective of attaining socio-economic betterment of the people can only be fulfilled if the rate of growth of population is controlled and human skill and resources are developed to the desired extent. The Government of India have recognised family planning as a key programme for the success of the country's Five Year Plans of development and have adopted a nation-wide programme with the objective of reducing the birth rate from 40 per thousand at present to 25 per thousand as expeditiously as possible. The operational goal for achieving this objective is to create facilities for 90 per cent of the married population of India, for the adoption of family planning by:

(*i*) Group acceptance of a small sized family;

(*ii*) Personal knowledge about family planning methods; and

(*iii*) Ready availability of supplies and services.

37. India is one of the few countries which has taken up family planning as a national programme. In the First Plan, a modest beginning was made. During the Second Plan, an action-*cum*-research programme was initiated. The progamme was intensified towards the middle of the Third Plan when the emphasis was shifted from the clinical approach to a more vigorous extension education approach for motivating the people to accept the norm of a small family. The programme involves various aspects of community life and social behaviour of the people. Its successful implementation requires: (i) large numbers of trained staff such as doctors, nurses, mid-wives, health educators and other experts as well as non-technical adminis-

trative and executive personnel, (ii) training facilities on a very wide scale for training of all categories of staff, (iii) supplies of contraceptives, intra-uterine device (IUCD), equipment, transport, etc.

38. There were only 147 Family Planning centres at the end of the First Plan period. This number increased to 11,474 by the end of the Third Plan. In addition to these centres, nearly 9329 centres for distribution of contraceptives have been located particulary in the rural areas. These centres provide supplies, services and advice on family planning. The programme has all along been integrated with the maternity and child health programme. All known methods of contraception are being followed with particular emphasis on the IUCD, which was introduced in the last year of the Third Plan. The response of the people has been encouraging both in urban and rural areas, particularly the response of women to the IUCD. Over 0·8 million IUCD were inserted and more than 1·5 million sterilisation operations were performed by the end of the Third Plan.

39. Certain organisational changes have been introduced in order to facilitate speedy implementation of the programme. The Ministry of Health has been redesignated as the Ministry of Health and Family Planning. A Department of Family Planning has been created with a separate Secretary. A Commissioner of Family Planning has been appointed with Regional Directors for better liaison with the State Governments and State organisations for Family Planning. For technical support, a Central Family Planning Institute has been established as an autonomous organisation. For giving advice on demography and communication research, two committees have been formed, viz. the Demographic Advisory Committee and the Communication Action Research Committee. For medical and biological research, an Advisory Committee has been formed under the auspices of the Indian Council of Medical Research. A Cabinet Committee has been constituted with the Minister for Plannning as Chairman and the Ministers of Finance, Information and Broadcasting, Food and Agriculture and Health as Members. This Committee will facilitate the taking of quick decisions and speeding up the implementation of the programme.

PROGRAMME FOR THE FOURTH PLAN

40. In keeping with the basic objective of reducing the birth rate from 40 to 25 per thousand as expeditiously as possible, the outlay of Family Planning has been stepped up from Rs. 27 crores in the Third Plan to Rs. 95 crores in the Fourth Plan. The programmes include the recruitment and training of doctors and other workers at various levels to implement the campaign and the provision of

supplies and services that go with it. It is intended to cover all the 5200 Community Development blocks as well as the urban areas where there are large concentrations of population. Provision is being made for audio-visual equipment, technical equipment, mobile units, etc. The Department of Family Planning has, since the preparation of this Chapter proposed an additional outlay of Rs. 144 crores in the Fourth Plan for further intensification of the programme. These proposals will be considered and any additional amount that this programme can usefully spend will be provided through the Annual Plans.

41. Although it is intended to promote all methods of contraception, emphasis is being laid on the IUCD because of its efficacy, reversibility and acceptability. Stress is also being laid on all other conventional methods. The successful implementation of this programme requires large number of women doctors and steps are being taken to ensure their availability for the purpose. A Central 'task force' of doctors has been created and special stipends are being given to women medical students who agree to serve in the family planning programme after their graduation. It is also intended to involve private medical practitioners in the programme.

42. The mass education and motivation programme will be intensified during the Fourth Plan. Steps have already been taken to make fuller use of various media like films, radio, press etc., for promoting the acceptance of the family planning programme as a way of life. These include mobile audio-visual vans, transistorized radio sets for villages not having electricity and the production of a large number of feature films and short films on family planning

43. As already mentioned, the programme will be implemented on a coordinated basis involving several Ministries. The most important is the professional work of doctors and other medical personnel under the Ministry of Health and Family Planning. Steps have already been taken to start the manufacture of loops for the IUCD programme and the manufacture of condoms, both in private and public sectors. The Ministry of Information and Broadcasting will play a major role in the mass education field. The Block staff of the Department of Community Development and the staff of the Ministries of Education, Local Self Government and Social Security and various industrial organisations will be utilised for the propagation of family planning programmes. The overall coordination will be done through the Committee of the Cabinet.

44. The active participation of Voluntary Agencies, Local Leaders, Local Bodies, Labour Organisations and other associations in various fields of national life is essential to the successful implementation of

the programme. Since it involves mass contact with the people it is vital that representatives of the people themselves are fully associated with the programme. With this end in view, enhanced provision has been made for voluntary organisations and steps are being taken to associate local leadership both in the rural and urban areas.

III

WATER SUPPLY AND SANITATION

45. The backlog to be covered in both rural and urban water supply and sanitation facilities is still very large in spite of the efforts made during the first three Plans.

46. Altogether 644 schemes of rural water supply were approved during the first three Plans at an estimated cost of Rs. 44·21 crores. Most of the schemes sanctioned during the first two plans have already been completed. The projects sanctioned during the Third Plan have also been mostly completed within that period. About 17,000 villages have already been provided with piped water supply. A quick survey conducted by the Union Department of Community Development through their Block Organisation indicate that about 30 per cent of the villages/hamlets still have inadequate water supply and about 25 per cent are without a satisfactory source of water supply.

47. About 272 urban water supply and sewerage schemes were sanctioned during the First Plan, 227 in the Second Plan and 529 in the Third Plan. The total estimated cost of these schemes worked out to Rs. 182·40 crores. Even after the completion of the Third Plan, 52 per cent of the urban population will be without adequate water supply and 76 per cent without sewerage.

48. With the limited resources available, it is not possible to wipe out all the backlog in rural and urban water supply and sanitation facilities during the Fourth Plan. Priorities have to be assigned to tackle more pressing problems.

FOURTH PLAN PROGRAMME

49. During the Fourth Plan priority would be given to Rural Water Supply Schemes, schemes for urban and rural areas endemic with cholera and filaria and schemes for overcrowded metropolitan areas. A total outlay of Rs. 373 crores has been provided for rural and urban water supply and sanitation schemes as detailed below:

	(Rs. crores)
rural water supply schemes	150·00
areas endemic with cholera and filariasis	33·00
urban water supply and sanitation schemes (including metropolitan schemes)	190·00
total . . .	373·00

RURAL WATER SUPPLY SCHEMES

50. Rural water supply schemes have been taken up mainly under programmes for Community Development, Local Development Works and Welfare of Backward Classes. These are supplemented by the National Water Supply and Sanitation Programme which deals with provision of piped water supply. The programme gives priority to areas of severe water scarcity and areas endemic with water borne diseases. Under the well construction programme, about 7 lakh wells have been newly constructed or renovated till the end of the Third Plan. There is, however, paucity of data on the number of villages so far provided with these facilities. The Special Investigation Divisions set up during the Third Plan as a Centrally sponsored scheme in 13 States have been able to investigate a number of areas affected by scarcity. This work should be intensified during the Fourth Plan. The well construction programme in the rural areas should be directed more to areas affected by scarcity conditions. This programme should be fully coordinated with the rural piped water supply programme. With the setting up of the Central Investigation, Planning and Design Organisations in each State, it should be possible to define quickly the areas affected by regular scarcity for drinking water and suggest sources of supply.

URBAN WATER SUPPLY SCHEMES

51. The position with regard to water supply and sewerage facilities in the metropolitan cities like Calcutta, Bombay, Delhi, Madras and Bangalore is acute. Most of the systems designed many years ago have not expanded adequately to meet the population growth. None of these cities have fullfledged treatment of sewage or adequate sewerage net works. There is danger to public health by indiscriminate river and stream pollution on account of the discharge of city wastes. In the other urban areas also the problems to be tackled are formidable. But during the Fourth Plan priority would be given to areas endemic with cholera and filaria.

METROPOLITAN AND REGIONAL WATER SUPPLY AND SEWERAGE BOARDS

52. Water supply schemes should be planned and executed, as far practicable, on a regional basis for towns and villages. In order to enable this, there is a need to set up Regional Water Supply and Sewerage Boards in the States. Resources for development can be raised through loans from the open market, collection of adequate water charges and levy of cesses. In the case of Metropolitan areas, there should be separate Boards for this purpose. Water Supply and Sewerage should be operated as a combined utility; surpluses from the water supply side could make good the deficits in operating the sewer-

age system. As a matter of principle no urban water supply scheme should be sanctioned unless it is followed up immediately by a sewerage scheme.

WATER POLLUTION CONTROL

53. With rapid growth of industries and urban areas the danger of pollution of the rivers and natural streams has increased. As these are also the major sources of drinking water, there is an immediate need for abatement of river and stream pollution by proper control at the State, Regional and Central levels. The Ministry of Health has prepared a draft legislation. Early enactment and enforcement of this legislation in all the states is essential for the preservation of public health.

ANNEXURE 1

Achievements and Targets under Health : Second, Third and Fourth Plans

item	position by the end of Second Plan (1960-61)	anticipated position by the end of Third Plan (1965-66)	position by the end of Fourth Plan (targets) (1970-71)
hospital beds (including beds for primary health centres)	185600	240100	300100
primary health centres	2800	4800	establishment of the remaining 400 PHCs and strengthening of all the Centres.
medical colleges	57	87	112
annual admissions (undergraduate doctors)	5800	10625	19125
nurses intake (annual)	4000	8000	18500
annual admissions (dental)	281	600	1000
dental colleges	10	13	16
available manpower			
doctors	70000	86000	131000
nurses	27000	45000	87000 to 90000
aux. nurses-midwives and midwives	19900	35000	95000
health visitors	1500	3500	5000
dais/nurse-dais	11500	30000	280000
malaria :			
attack phase (units)	390·00	80·26	4·00
consolidation phase (units)	—	170·36	19·50
maintenance phase (units)	—	142·63	370·00
total	390·00	393·25	393·50
smallpox			
population covered	@	83% coverage	100% coverage & maintenance phase operations.
T. B.			
district T. B. clinics (well equipped)	%	145*	345**
leprosy :			
(*i*) leprosy control units	135	200	300
(*ii*) survey, education and treatment centres	—	475	2475
(*iii*) training centres for non-medical Assistants	n.a.	8	14
V. D.			
(*i*) district clinics	} 83	101	161
(*ii*) head-quarters clinics		6	12
(*iii*) mobile V. D. teams (survey and study teams under the centre)	n.a.	—	4

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*Although at present there are 425 clinics in the country.

**Upgrading and establishment of new clinics.

%The number of clinics was 220 but the number of well-equipped is not available.

@The Pilot Project was initiated during the last year of the Second Plan.

ANNEXURE II

Outlays on Health programmes : Third and Fourth plans

programme	(Rs. crores) outlays	
	Third Plan	Fourth Plan
1 *medical education, training and research* :		
(*i*) medical education :		
(*a*) undergraduate	42·10	50·00
(*b*) postgraduate		55·00
(*c*) postgraduate in public health	—	2·00
(*d*) establishment of opthalmic centres for post-graduate training	—	1·50
(*ii*) research	3·97	10·00
(*iii*) dental education	1·22	3·50
(*iv*) nursing education		31·00
(*v*) training of para-medical personnel	8·47	23·07
(*vi*) training of other ancillary personnel		2·23
total	55·76	178·30
2 *control of communicable diseases* :		
(*i*) malaria	41·95	19·21
(*ii*) smallpox	6·89	4·50
(*iii*) tuberculosis	11·91	33·00
(*iv*) leprosy	4·34	12·00
(*v*) filariasis	2·37	4·50‡
(*vi*) trachoma	0·20	8·00
(*vii*) v. d.	0·58	1·50
(*viii*) cholera	0·14	3·00‡
(*ix*) rabies and other diseases	1·60	0·97
total	70·32*	86·68
3 *medical care* :		
(*i*) primary health centres	16·68	103·00
(*ii*) hospital beds	41·81	45·50
(*iii*) polyclinics		
(*iv*) emergency medical services	—	4·00
(*v*) mental health	0·25	2·00
(*vi*) health insurance	0·85	8·00
(*a*) cghs		
(*b*) pilot projects		
(*vii*) prevention of eye diseases	—	0·50
(*viii*) blood transfusion and resuscitation services	—	2·50
(*ix*) grants to voluntary agencies	2·00	5·00
(*x*) rehabilitation of handicapped	0·20	5·00
(*xi*) intensive health districts	—	2·00
(*xii*) dental health services	†	3·50
total	61·79	181·00

4 *other services* :		
(*i*) public health organisation	0·50	10·00
(*ii*) public health laboratories	2·85	3·20
(*iii*) students health programmes	1·28	6·20
(*iv*) M. C. H.	2·26	
(*v*) nutrition	0·07	
(*vi*) prevention of food adulteration	—	4·10
(*vii*) health education	0·82	1·20
(*viii*) drugs	0·40	2·00
(*ix*) goitre	0·14	0·30
(*x*) medical stores	—	3·20
(*xi*) cancer	0·28	2·00
(*xii*) development of certain central institutes	0·53	3·54
(*xiii*) miscellaneous	3·73	0·28
total	11·86	36·02
5 I. S. M.	9·82	10·00
grand total	209·55	492·00

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*Includes Rs. 0·34 crores for Nagaland for which break-up is not available.

†Included in the provision of Rs. 1·22 crores for Dental Education under Medical Education, Training & Research.

‡The outlays for Cholera and Filaria Control Programmes are meant for Administration and Control operations only. As for the sanitation and water supply part of the programme, those are included in the allocation for water supply and sanitation programme.

CHAPTER XIX

REGIONAL AND URBAN DEVELOPMENT AND HOUSING

ECONOMIC development accelerates urbanisation and this raises a variety of problems of spatial implication such as land use, location of industries, laying out of transport, communication and power facilities and provision of housing, water supply, sanitation and other social services. It becomes necessary to harmonize all activities inscribed on land—industrial and agricultural, commercial and residential, cultural and social. The objective of urban and regional planning is to achieve this.

2. It is expected that urbanisation would grow in India in the coming years. It is estimated that about 23 per cent of the population might live in the urban areas by 1981 as against 18 per cent in 1961. We shall be adding in all probability 80 million to the urban population in two decades. In the absence of balanced urban and regional development, the population will tend to converge in the big towns which have grown in a haphazard manner and lack basic amenities. It is, therefore, necessary to give conscious direction to this growth through comprehensive physical plans—regional and urban. In achieving balanced and controlled physical development, it is necessary to bring proper coordination with regard to various components of development such as land acquisition and development, housing, water supply and sanitation, power and transport.

I

REGIONAL AND URBAN DEVELOPMENT

3. According to the 1961 census, there were 107 Class I cities in India with a population of 1 lakh and above and 141 Class II cities with a population between 50,000 and 1 lakh. Nearly 45 per cent of the urban population lived in these bigger towns. A fourth of the urban population is concentrated in the metropolitan cities having a population of 5 lakhs and above—Calcutta, Bombay, Delhi, Madras, Bangalore, Kanpur, Nagpur, Hyderabad, Poona and Lucknow. The pressures for further development in these towns are great. In addition to these, there are about 515 towns having population between 20,000 to 50,000 and 1927 small towns having population below 20,000 It will take some years before plans can be prepared for all the towns. And, it is necessary to accord priority in preparing plans for towns which are growing fast and where the absence of planning can cause serious clogging.

THIRD PLAN PROGRAMMES

4. A small beginning was made during the Third Plan for preparing Master Plans for cities and towns. A sum of Rs. 3 crores was allocated for assisting the States to prepare plans for certain selected cities and regions. The programme covered in all 62 Class I and II cities. Besides, preparation of Regional Plans for the following 13 regions was also taken up—Calcutta Metropolitan Region, Delhi Metropolitan Region, Gorakhpur-Deoria Region, Mirzapur-Rihand Region, Rishikesh-Hardwar Region, Ghaziabad-Bulandshahar Region, Kulu-Manali Region, Rajasthan Canal Region, Dandakaranya Region, South-East Resource Region, Bhilai Region, Neyveli Region and Trivandrum Region. The Plan for Calcutta Metropolitan Region was financed separately through a pool provision between the State and the Centre, of Rs. 20 crores, which also provided funds for certain development works. Of others, the Delhi Master Plan has been completed and is being implemented according to the privisions of the Delhi Development Act.

FOURTH PLAN PROGRAMME

5. The Fourth Plan contemplates completion of plans that have been taken up during the Third Plan period. In addition, plans are to be prepared for about 52 Class I and 105 Class II cities and 49 tourist/pilgrim centres. There are certain regions in the country which have been growing faster and where unplanned growth has been taking place in the absence of planning and control on development. It is proposed now to prepare detailed plans for these regions.

6. Along with the preparation of plans, urban research work is a necessary component as a complement to urban and regional planning undertaken at the Centre and State organisations. It is, therefore, proposed to create Urban Research Cells in these organisations.

URBAN DEVELOPMENT WORKS

7. Although the city development programmes have to be financed from the funds available in the conventional sectors, there would still be left certain aspects of city development programmes and improvements for which funds cannot be found from these sectors. It is proposed to make a small provision to start with for such programmes so that with the funds available from the conventional sectors it is possible to achieve integrated development.

8. Training of municipal and local self government employees is necessary to improve efficiency in local administration. It is proposed to make arrangements in the Indian Institute of Public Administration in Delhi for training of employees. A few other centres may also be considered depending upon requirements.

9. The pilot programme on Urban Community Development started during the Third Plan is proposed to be expanded during the Fourth Plan. It is important to intensify the effort for greater citizen participation in community development work both to tackle the growing problems of city life and to ensure successful implementation of urban development plans.

10. The following are the outlays proposed for Urban and Regional Planning, Urban Development Works, LSG and Municipal Works:

	(Rs. crores)
town and regional planning	
preparation of master plans, city development programmes, regional plans and urban research cells.	13·00
implementation of certain vital aspects of urban development plans, urban community development and other LSG and municipal works	15·00
total .	28·00

LEGISLATION AND LAND POLICY

11. The basic requirement for implementation of the Master-Regional Plans is comprehensive legislation for town and country planning which should provide the machinery—administrative and technical—for preparation, sanction and implementation of the plans. Some of the States have already prepared draft legislation. A high priority should be given to this aspect as the plans cannot be implemented effectively without the requisite legislation.

12. Some of the requisites of an adequate implementation of city development programmes are the following : There should be a provision in the Master Plans of development for reservation of sites required for public purposes. It is also necessary to enable the developmental authorities and agencies to acquire lands expeditiously and at reasonable prices. Large scale acquisition and development of land by public authorities on the periphery of growing urban townships is a necessary prerequisite for orderly development and as a means for an adequate impact on low and middle-income housing. Apart from these administrative and procedural requirements, it is necessary to take note of the important issue of urban land values. The extremely steep rise in property values that has occurred on the outskirts of larger cities and metropolitan towns in recent years, has created a situation in which the policies of Local Governments in regard to urban land and property rights call for a major revision. The sale and purchase of urban properties, sometimes at fantastically high rates, is a feature compounded of many undesirable elements. There is reason to believe

that a large part of the speculative gains as a result of rise in the values of these properties is suppressed and escapes the taxation provisions relative both to capital gains and stamp duties on transactions of immovable property. As these property values clearly represent unearned incomes and wealth, it ought to be the objective of any progressive fiscal system to mop up effectively these betterments, resulting from general development to the public fisc. It will be necessary to consider what legislative amendments are called for to ensure that a due proportion of the unearned increases in these land values is appropriated to public revenues and the loopholes existing at present for evasion of tax dues are effectively plugged. These problems are under examination. In the course of this examination, it may well be found necessary to consider making appropriate amendments to the Constitutional provisions in respect of property rights for effectively plugging the loopholes for tax evasion. Indeed if such measures are not found adequate, it may even have to be considered whether in certain urban areas, land ought not to be brought under public control limiting private rights of sales in respect of such urban lands and properties.

AUGMENTATION OF LOCAL FINANCES

13. There is a large scope for augmenting local resources for urban development works. A judicious review is essential for upward revision of water rates and property taxes and to introduce certain new taxes by which it should be possible to create additional incomes. A committee appointed by the Union Ministry of Health in 1963 has gone into the finances of urban local bodies and early action on its recommendations should be taken.

INDUSTRIAL LOCATIONS

14. A number of public undertakings have located industries and other institutions without coordinating them in consultation with the Town Planning authorities. This has resulted in piecemeal and unplanned development of peripheral areas. Lack of utility services, congestion and traffic bottlenecks characterise such developments. It becomes necessary to ensure that the appropriate town planning authorities are associated with the decisions regarding location of industries and industrial townships.

TRAINING OF MANPOWER

15. It has been estimated that about 2000 town planners of various levels would be required for planning work during the Fourth Plan period. With the current training programmes in different parts of the country, it should be possible to meet this demand. The planning school will, however, train young town planners. Special courses

will have to be organised to give necessary orientation in town and country planning to senior technical personnel with experience in allied disciplines such as civil engineering and architecture who may be called upon to man higher posts in the field.

II

HOUSING

16. Housing is an integral part of physical development. A large number of housing consumers belong to the low income group and are not able to pay the economic rent of a standard dwelling unit. Housing construction for them is not an attractive commercial proposition. Housing for this category of people has to be, therefore, provided to a large extent through housing schemes in the public sector.

FOURTH PLAN PROGRAMME

17. The Fourth Plan envisages increase in housing output both in urban and rural sectors. It seeks to give an impetus to the programme by creation of proper institutions for housing finance and providing incentives to private construction. An outlay of Rs. 252 crores is proposed for various housing schemes as detailed below:

	(Rs. crores)
subsidised industrial housing scheme	45·0
low income group housing scheme.	30.0
slum clearance and improvement scheme	60·0
village housing scheme	25·0
land acquisition and development	25·0
middle income group housing scheme in Union Territories	5·0
plantation labour housing scheme	2·0
dock labour housing scheme	2·5
establishment of cellular concrete factories	3·7
experimental housing, housing statistics, etc	3·8
office and residential accommodation for Central Govt. employees	50·0
total	252

In addition to this provision, the Life Insurance Corporation is expected to provide some funds for housing during the Fourth Plan. It should be possible to finance a large part of the programmes for land acquisition and development, middle income group and rental housing in the States from this source. Also efforts are being made to obtain additional funds for housing from the Employees Provident Fund, particularly for the housing of industrial workers.

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*This is mostly intended to provide residential accommodation for lower categories of Central Government staff at Delhi, Bombay, Calcutta, Madras and Nagpur where the shortage of housing is very acute.

CENTRAL AND STATE HOUSING BOARDS

18. Implementation of housing schemes depends on the institutions available for promoting housing finance, housing administration and construction. The Third Plan recommended the creation of a Central Housing Board. It has not yet been set up. It is important that a Central Housing Board should be set up at an early date. It will help coordinate the functions of the State Housing Boards. In some of the States, Housing Boards have already been set up. In others early action needs to be taken to set them up on a statutory basis. The State Housing Boards would be able to pool the resources available from various sources and utilise them for organised housing development.

LAND DEVELOPMENT SCHEMES

19. All the Land Development Schemes should provide land not only for housing but also for commercial, industrial and other uses also. In order to augment the resources available for land development the public authorities should take advances against cost of plots and collect the cost of development as the development proceeds in suitable instalments.

SLUM CLEARANCE AND IMPROVEMENT

20. The scope of the slum clearance schemes needs to be enlarged so as to enable State Governments and other authorities to take up schemes of urban renewal. The redeveloped areas should provide for various social amenities such as schools, hospitals and markets. Slum clearance in central areas should be able to operate on a self-financing basis if sufficient areas for commercial and other remunerative uses are provided for in the redevelopment design. In order to speed up slum clearance, there is need for the State Governments to initiate at an early date legislation based on the Central Slum Clearance Act which provides the necessary authority and powers for the local authorities to undertake redevelopment and protect the rights of tenants in the redeveloped premises. Nine States have already enacted this legislation. Where slum clearance is likely to take time, slum improvement programmes should be speeded up.

COOPERATIVE HOUSING

21. To help augment funds for private housing construction on a co-operative basis, it is recommended that Apex Co-operative Housing Finance Societies may be established in all the States on the pattern of Societies already established in Maharashtra, Gujarat, Mysore and Orissa. These should be able to procure funds from the State Housing Boards and the Life Insurance Corporation and accept deposits from private parties.

22. With a view to supplementing the housing output, necessary encouragement, including financial assistance, should be given to housing industrial enterprises who could build houses for sale as well as for renting. The Housing Boards could advance secured loans to such undertakings.

VILLAGE HOUSING

23. In order to give a fillip to the rural housing programme, villages in which there is congestion on account of a rise in population or a new economic activity, should be chosen for expanding and improving the village *abadis*. The lay out for the redesign of the village should include provision for new housing for all communities including backward classes and Harijans and also for various other community facilities such as schools and health centres. Harijans and Backward Classes would continue to get subsidies for house sites and housing construction. Other sections of the village community would get loans.

CHAPTER XX

SOCIAL WELFARE

THE common purpose of development plans in all spheres is to seek, in the given circumstances, the maximum welfare of the community. However, in every society there are social problems which need special attention. At the same time, the very process of development throws up new problems which call for social action. Social welfare programmes included in the Five Year Plans form part of the effort to deal with some of these problems.

2. *Scope of social welfare programmes.*—In its wider aspect, social policy and programmes comprise measures directed towards a wide range of objectives, notably,

(*a*) expansion of social services and their qualitative improvement ;

(*b*) welfare and development of the weaker and more vulnerable sections of the population ;

(*c*) development of supplementary welfare services at the level of the local area and the local community ;

(*d*) social reform ;

(*e*) provision of social security and social assistance ; and

(*f*) social change, including reduction in disparities of income and wealth, prevention of concentration of economic power and steps to equalise opportunities within the community.

The principal advances are to be expected through rapid economic growth accompanied by expansion of social services, specially education, health, family planning, nutrition and housing. Policies aiming at enlarging economic opportunities and creating better social conditions for the weaker sections of the population and bringing about greater economic and social equality and integration within the community, run through every sector of the plan for national development. In respect of social security, so far only the beginnings have yet been made in relation to workers in organised industries. For other sections of the community, at this stage, the approach has to be through acceleration of development, expansion of employment opportunities and provision of schemes for social assistance and community action. Thus, specific social welfare programmes, which are briefly described in this chapter, aim at providing certain supplementary welfare services mainly at the level of the local area and the local community and supporting voluntary efforts towards eradication of social evils, old and new.

3. *Review of progress.*—Social welfare programmes have taken shape by stages in the course of the first three Plans. In the first Plan a provision of Rs. 4 crores was made for welfare programmes for women and children and for grants to voluntary bodies. To administer these programmes, the Central Social Welfare Board was constituted as a non-official autonomous organisation which could, in turn, bring large numbers of voluntary women workers into the field of social work. At this stage, social welfare schemes undertaken in the States were outside the purview of the Plan. In the Second Plan, the scope of social welfare programmes was enlarged to include both Central and State schemes, and a provision of Rs. 19 crores was made, against which expenditure incurred was about 14 crores. In the Third Plan, besides programmes pertaining to social defence, social and moral hygiene and after-care services and services for handicapped, special attention was given to the welfare of women and children. The Plan provided for a total outlay of Rs. 31 crores but, due to the budgetary and other limitations after 1962-63, programmes in this sector did not expand as the Plan envisaged, and the actual expenditure over the Plan period amounted to about Rs. 19 crores. At the end of the Third Plan, there were 264 welfare extension projects for women and children functioning in coordination with community development, 306 welfare extension centres run by recognised voluntary organisations and 1472 welfare extension services run by registered *mahila mandals*. There were also 17 integrated child welfare projects in progress in the States. About 6,000 voluntary organisations have received grants-in-aid through the Central and State Social Welfare Boards for providing specific welfare services to women and children and to handicapped persons. About 625 condensed courses in education and 75 production units were instituted in urban areas for the benefit of women. The Central Social Welfare Board also set up 66 urban welfare extension projects. A number of night-shelters were also organised. Programmes in moral and social hygiene and after-care services were started at 16 institutions. For the rehabilitation of handicapped persons 27 training-*cum*-home centres were established.

4. *Fourth Plan provisions.*—For the Fourth Plan, a provision of Rs. 50 crores has been made for social welfare programmes. The following are the principal programmes :

	(Rs. crores)
family and child welfare	13·0
special programmes for women	6·0
special programmes for children	8·0

welfare projects for non-student youth	2·0
eradication of beggary	3·0
social defence	5·0
rehabilitation of handicapped persons	9·0
aid to voluntary organisations	2·0
training, research and administration	2·0
total	50·0

In addition, under the head 'Miscellaneous' in the Plan, a provision of Rs. 4 crores has been made for social assistance schemes for three groups of persons who may be altogether lacking in the means of livelihood and support, namely, the physically handicapped, old persons unable to work and women and children. These schemes are to be implemented through the Department of Social Welfare and in the States with the support and participation of civic institutions and voluntary organisations. The Department of Social Welfare is also responsible for implementing the programme for displaced persons from East Pakistan who are staying in homes and infirmaries. A provision of Rs. 2 crores has been made for this under Rehabilitation.

5. *Institutions for social welfare.*—Before describing briefly the main features of social welfare programmes for the Fourth Plan, it should be stated that in their very nature, most of these programmes can be effectively implemented only through a favourable environment for cooperative working between various operating agencies, governmental and non-governmental, at the level of the local area and the community. It is important that these agencies should be given freedom to administer and execute, to change and adapt, and to find their own solutions for the many problems which must arise from day to day within each community. The primary task of agencies at higher levels is to create conditions in which agencies directly responsible for carrying out schemes can best succeed. Beyond a point, planning and direction in detail from above can hinder implementation. Secondly, the key to the success of social welfare programmes lies in each community taking an integrated view of community welfare and accepting the obligation of looking after the interests of all its members, and specially of those who need the help most. This implies that everything possible must be done to strengthen local self-governing institutions and voluntary organisations. Through Panchayati Raj, a system of rural democracy is being built up at the village, block and district level. It is essential that Panchayati Raj institutions should be fully involved in undertaking welfare programmes in these areas. In towns and cities, at present most municipal institutions suffer from lack of resources and are not fully associated with welfare progra-

mmes. This is at present a lacuna in the scheme of social welfare. In the third place, both in rural and in urban areas, local self-governing institutions should work on the basis of complete partnership with voluntary organisations. Alone, neither local self-governing institutions nor voluntary organisations can achieve fully the aims of welfare for the community, and more specifically, for women, children and youth.

6. Voluntary organisations have to be supported and nurtured with care. There is a vast amount of energy to be mobilised at every level. Significant leadership resources exist in most communities. Potential leaders are held back frequently from lack of knowledge and lack of resources. These are the two elements which plans at the national and State level should seek to provide. Few investments will yield larger results than the training of leaders and workers at the community level. Experience in the working of voluntary organisations suggests that priority should be given to building up their capability for continuous work. Therefore, in the Fourth Plan, while grants would, no doubt, be required for equipment and other facilities, the greater emphasis should be on the strengthening of voluntary organisations through nucleus staffs of trained workers who can be maintained as part of a total social service and can act as effective catalysts for getting the best out of the available human resources. With greater freedom and flexibility in using the resources made available to them, each community and the voluntary organisations which serve it should be able to develop greater capacity to solve their social problems and enlarge the area of welfare activities.

FAMILY AND CHILD WELFARE

7. *Family and Child Welfare.*—In the ordinary course, development programmes reach women and children indirectly through the general spread of economic development and expansion in social services. But this is not adequate, for, under the existing schemes of development it is extremely difficult to give sufficiently continuous and systematic attention to the needs of women and children. There are already lags in education and welfare between men and women. In the case of the weaker and poorer sections of rural community in particular, children suffer from many handicaps in their future development. Although considerable work has been done over the past decade through welfare extension projects, in planning for the future three considerations have to be kept in view. First, most of the welfare extension projects undertaken in cooperation with the community development programme have completed their first stage and

have to run varying periods for the balance of the second stage. Arrangements for continuing these projects have to be made on a firm basis. Secondly, most of the voluntary organisations and *mahila mandals* to which welfare extension centres were entrusted a few years ago, find it difficult to maintain the services which have been established or to expand them unless the necessary resources are assured. Thirdly, besides strengthening institutions and centres already established, the future programmes for women and children should be so organised that similar services could become available on a continuing basis in all rural areas.

8. After careful evaluation of past experience, leading social workers are agreed that in proposing schemes of development for women and children, the family should be treated as the basic unit and a composite family and child welfare programme should be adopted. Accordingly, in the Fourth Plan, it is proposed that the family and child welfare programme should include the following main activities:

(1) provision of integrated social services to children in the villages, specially to pre-school children ;

(2) provision of basic training to women and to young girls in homecraft, mothercraft, health education, nutrition and child care and provision of the essential health and maternity services for women ;

(3) promoting cultural, educational and recreational activities for women and children ; and

(4) assisting women in the villages to obtain supplementary work and income and generally promoting economic activities on the part of women.

Provision of supplementary work and income is an important means of reaching women in the villages and augmenting family income and family welfare. Under the family and children welfare programme only the basic organisation and core facilities can be provided, but if these are available it is hoped that through other programmes included in the Plan notably under village and small industries, cooperation and rural works, it should become possible to provide fuller work opportunities for women in the villages.

9. In the coming years, the family and child welfare programme will need to develop along two related paths. First, within the resources available, the programmes should extend progressively to an increasing number of community development blocks. Secondly, wherever, local communities and leadership are prepared to make the

necessary effort, means should be available for providing a measure of support to them. The first is the aspect of organised advance, the second of voluntary growth. Both aspects are inter-related and support each other. In blocks in which family and child welfare projects are established, there should be even greater scope for encouraging voluntary effort by local communities but in other areas also there should be some opportunity for development through the initiative of local communities.

10. The organisational pattern for the famliy and child welfare programme has been carefully considered. It is essential to enlist the cooperation of Panchayati Raj institutions and of other agencies engaged in providing development services. The three essential conditions to be secured are :

(1) cooperation and participation on the part of Panchayati Raj institutions and agencies engaged in providing development services, including schools and primary health services ;

(2) participation of voluntary workers, both from within and outside the block ; and

(3) active involvement on the part of and assumption of responsibility by local communities and local leaders working through Panchayats, cooperatives and voluntary associations.

11. In blocks in which family and child welfare projects are undertaken, it is envisaged that at the block level there should be a Family and Child Welfare Centre with the necessary personnel, equipment and buildings. This Centre should develop into a permanent institution serving women and children and the families in the block. It should become an important means through which various development agencies can extend their services so that the women and children of the area are benefited to the greatest extent possible. The main Centre would provide facilities for training women. It is envisaged that besides the main Centre in the block, there should be up to five subcentres for which full-time personnel (Balsevikas) are available. The scheme also provides for 8 to 10 aided centres being set up during the Fourth Plan by local *mahila mandals* with the help of the village Panchayat, the services being organised by a local woman worker (*Gramlakshmi*) to whom an honorarium is given. As part of a growing movement and as there is greater response on the part of women in the area the number of such aided centres should increase steadily. On the tentative estimates prepared for the programme, a family and child welfare project with one main Centre, 5 sub-centres and 10 aided

centres would involve non-recurring expenditure amounting to Rs. 55,500 and recurring expenditure per year of Rs. 39,500. The programme has to be implemented through the Central and State Social Welfare Boards.

12. The family and child welfare programme has to be undertaken in partnership between Panchayati Raj institutions and voluntary organisations and workers. It is envisaged that the Panchayat Samiti should be responsible for the establishment of family and child welfare centres and the organisation of the entire programme as an integral part of the plan for rural development and rural welfare. At the same time, because of the nature of the tasks to be carried out and the need to enlist women workers to the maximum extent, it is proposed that the programme should be implemented under the overall supervision of the State Social Welfare Board and the State Government. It is envisaged that the Panchayat Samiti would agree to place the family and child welfare centres with its associated sub-centres and aided centres under the management of a special Functional Committee of the Panchayat Samiti. This Committee would include two groups of members in equal number, namely, those represented by the Panchayat Samitis and those proposed by the State Social Welfare Board, the majority of the members being women. The chairman of the Panchayat Samiti would also serve as the chairman of the Functional Committee which would be responsible for running the family and child welfare programme. The day to day responsibility for the programme could be entrusted to the vice-chairman of the Functional Committee who should be a non-official woman worker proposed by the State Social Welfare Board in consultation with the Panchayat Samiti. It is hoped that the resources provided by the Centre and the State for the family and child welfare programme would be supplemented to some extent by local resources drawn from the Panchayat Samiti and village communities in the block. Tentatively, it is proposed to introduce the family and child welfare programme along the lines explained above in about 800 blocks over the Fourth Plan period. Detailed arrangements are to be worked out in consultation with the States and the State Social Welfare Boards. If the programme succeeds during the Fourth Plan, over the next ten or fifteen years, it should become possible to make much greater progress in carrying the essential services to women and children in all rural areas. The programme will, of course, call for careful training of workers for evaluation from time to time and for strengthening of the official and non-official agencies concerned with it.

13. The family and child welfare programme is the largest single effort directed towards the welfare of women and children, specially

in the rural areas, and has to be implemented as a major national programme. Other programmes for women and children can be described more briefly. Several schemes for the welfare of women which are at present under way will be continued and expanded during the Fourth Plan. These include provision of condensed courses for women, establishment of socio-economic units for training and employment, hostels for working women and assistance to voluntary organisations and *mahila mandals* for carrying out various activities. Similarly, there are several existing schemes for the welfare of children which will be continued during the Fourth Plan. These include homes for children who are destitutes or have no one to look after them, foster-care and adoption services, holiday homes and camps and a national centre for child welfare. In the Third Plan, attention was drawn to the need for providing educational training on a full-time basis for children in the age-group 11-14 whose education had been discontinued. In the course of the Third Plan 65 centres for pre-vocational training were established with the support of three agencies of the United Nations, namely, UNICEF, UNESCO and the International Labour Organisation. This programme has been recently reviewed and details for the scheme to be implemented during the Fourth Plan are under consideration. A provision of Rs. 3·5 crores has been made for it in the Fourth Plan.

OTHER WELFARE PROGRAMMES

14. *Non-student youth.*—A working group on youth programmes set up by the Commission has recommended the establishment of a Central Youth Board and corresponding State Boards for enabling and assisting young people to participate more fully in the tasks of national development. The programme envisages schemes for both student and non-student youth in urban and rural areas. Provisions for different aspects of the programme are to be made under different heads and details are being worked out. As part of the plan for social welfare, a provision of Rs. 2 crores has been made for welfare activities, specially among non-student youth.

15. *Eradication of beggary.*—The Third Plan had referred to beggary as an age-old social evil which had been allowed to continue for too long and called for steps to eradicate beggary from large cities, places of pilgrimage and tourist centres. It also recommended central legislation for the control and eradication of beggary and vagrancy Experience in this field in different States has been recently reviewed by a study group constituted by the Planning Commission Panel on Social Welfare and proposals have been drawn up for the Fourth Plan. For this purpose, a provision of Rs. 3 crores has been made.

16. *Social defence.*—A provision of Rs. 5 crores has been made in the Fourth Plan for probation services, care and protection for children, non-institutional services for the prevention of juvenile delinquency, welfare work in prisons, social and moral hygiene programmes and protective homes for correctional training. Several of these schemes were under implementation during the Third Plan. It is proposed to extend the application of Children's Acts and to provide the necessary institutional services over the entire country. Special schemes are to be introduced to assist discharged prisoners in finding gainful occupations and entering the normal life of the community. In the field of moral and social hygiene, assistance will be given to voluntary organisations in developing their activities.

17. *Rehabilitation of handicapped persons.*—A number of schemes for handicapped persons, specially the blind, the deaf-mute, the orthopaedically handicapped and those who are mentally deficient or ill were implemented during the Third Plan. Besides developing existing institutions such as the Model School for Blind Children, the workshop for the Manufacture of Braille Appliances and the Central Braille Press at Dehra Dun, some new institutions were also established including the National Library for the Blind, Training Centre for the Adult Deaf and Model School for Mentally Deficient Children. Eight special employment exchanges were established for physically handicapped persons. Scholarships to blind, deaf and orthopaedically handicapped persons were provided for general education as well as for technical and professional training. The principal schemes to be implemented in the Fourth Plan include scholarships for physically handicapped persons, assistance to voluntary organisations, establishment of workshops, training centres, rehabilitation and adjustment centres, special schools for handicapped children, provision of scholarships on a larger scale and cells in employment exchanges for the physically handicapped. Provision has also been made for the establishment of homes for the aged.

VOLUNTARY ORGANISATIONS AND TRAINING AND RESEARCH

18. The role of voluntary organisations in social welfare programmes has been already stressed. It is recognised that besides voluntary workers, voluntary organisations should build up cadres of trained and experienced workers who can work on a continuing basis. A study group on voluntary organisations set up by the Planning Commission Panel on Social Welfare has made a number of recommendations concerning grants to voluntary organisations, conditions which they should endeavour to fulfil and the forms in

which assistance from Government should be made available to them. It is hoped to assist selected voluntary organisations in building up and maintaining trained personnel.

19. Manpower and research needs in the field of social work have been examined by a study group set up by the Planning Commission Panel on Social Welfare. The proposals made by the study group are under consideration. It will be necessary also to consider further administrative arrangements concerning social welfare programmes and their coordination with other programmes, specially at the state and district level.

CHAPTER XXI

WELFARE AND DEVELOPMENT OF BACKWARD CLASSES

PROGRAMMES for the welfare and development of backward classes are conceived of as being supplemental to general development programmes in different sectors. Therefore, they represent only a part of the resources to be drawn upon for promoting the economic and social well-being of scheduled tribes, scheduled castes and other backward classes. Special provisions in the Plan for backward classes should be utilised so as to generate larger support from general schemes of development and should not be utilised as a substitute for what is due to the backward classes from programmes under different sectors. This is all the more necessary because, while there has been progress in several directions, levels of well-being among tribal and backward communities have not risen in adequate degree and the processes of integration with the rest of the population have not proceeded rapidly enough. The urgency of rapid economic and social advance among these groups is now being recognised ever more than before. The success of development programmes undertaken on their behalf during the Fourth Plan is crucial to the progress of the country as a whole. In drawing up schemes of development for the Fourth Plan, special attention is, therefore, being given to the identification of factors which have accounted for slow progress in the past and to securing machinery and personnel for effective implementation. In this field, the Central Government provides a considerable part of the resources and has a special and continuing concern.

2. The outlay on special programmes for the welfare of backward classes rose from Rs. 30 crores in the First Plan to Rs. 79 crores in the Second and to about Rs. 102 crores in the Third Plan. Of the total amount of Rs. 211 crores spent during the first three Plans, Rs. 115 crores have been devoted to scheduled tribes, about Rs. 72 crores to scheduled castes, about Rs. 22 crores to denotified tribes and other backward classes and Rs. 2 crores to aid voluntary organisations. The Fourth Plan provides for an outlay of Rs. 180 crores, of which Rs. 100 crores are for scheduled tribes, Rs. 66 crores for scheduled castes and Rs. 14 crores for other schemes. The tentative break-down of the allocation is given below: (Rs. crores)

	education	economic development	house sites, water supply and other schemes	aid to voluntary organisations	total
scheduled tribes .	22	68	10		100
scheduled castes .	30	15	21		66
denotified tribes .	2	2			5
other backward classes	6	—	1		6
common provisions	—	—	—	3	3
total	60	85	32	3	180

Schemes included in the plans of States are expected to account for one-half of the total allotment, the rest comprising Centrally sponsored programmes.

SCHEDULED TRIBES

3. Tribal communities accounted in 1961 for a total population of about 30 million. In several parts of the country, they live in varying degrees of concentration. In the Fourth Plan special efforts will be made to develop the economies of such areas more intensively by combining to the maximum extent possible resources from different sectors with those separately allocated for the welfare and development of tribal communities. To implement such an integrated approach, it will be necessary to strengthen the existing administrative machinery, to place the maximum responsibility on the institutions and leadership of each tribal area and to give greater support to the efforts of voluntary organisations and voluntary workers. In other areas, where tribal communities live in scattered villages or groups of villages, it will be necessary to provide for special schemes to cater for their needs.

4. *Tribal development blocks.*—During the Second Plan, 43 development blocks situated in tribal areas were taken up for multi-purpose development and resources available under the community development programme were augmented from provisions made for welfare of scheduled tribes. Following an assessment of the working of these blocks in 1960, it was agreed that the programme of tribal development blocks should be implemented during the Third Plan over the country as a whole. By the end of the Third Plan, about 415 tribal development blocks have been taken up in areas in which the tribal population accounts for two-thirds or more of the total population. The Scheduled Areas and Scheduled Tribes Commission which reported in 1961 rocommended that tribal development blocks should be set up in areas with more than 50 per cent tribal population. In the course of the Fourth Plan and in the early part of the Fifth Plan, all areas which fulfil the criteria proposed by the Scheduled Areas and Scheduled Tribes Commission will come within the coverage of tribal development blocks. A provision of Rs. 55 crores has been made for tribal development blocks and associated schemes in the Fourth Plan.

5. The scheme for tribal development blocks makes it possible to supplement the provisions available under the normal community development budget and to give greater attention to the needs of the tribal population. To ensure that the benefits will reach the tribal people, it has been stipulated that 75 per cent of the resources available under the tribal development and community development block

provisions under the head 'Economic Development' should be earmarked for schemes which will be of exclusive benefit to the tribal population. Considerable flexibility in allocating resources under the tribal development budget is also envisaged. Experience of the working of tribal development blocks during the Third Plan, however, suggests certain improvements. Firstly, some of the existing tribal development blocks are far too large for proper administration. Secondly, departments at the State level concerned with tribal development programmes should be much more closely associated than they have been with the planning and implementation of tribal development programmes. Thirdly, in evolving proposals for tribal development blocks, special attention should be given to the problems of the tribal areas and of different tribal groups, and individual development schemes should be adapted accordingly. Fourthly, systematic plans of work should be prepared in advance for each tribal development block, and funds should be allotted so as to assist implementation all through the year. At present, frequently, funds are allotted for individual schemes at different times in the course of the year and are not always fully utilised. Finally, efforts should be made to draw resources provided under the general development programmes into the tribal development blocks to a much greater extent than has been done in the past.

6. On the lines of the two stages provided under the community development programme, allocations for tribal development blocks are also determined in two phases. In the first stage, the supplementary allocation from programmes for the welfare of scheduled tribes is Rs. 10 lakhs. In the second stage, it is reduced to Rs. 5 lakhs. For the present the Fourth Plan provisions are based on the continuance of these stages. However, it is a matter for serious consideration whether development of tribal communities may not be accelerated if funds are made available on an agreed, uniform basis from year to year for a minimum period of ten years or whatever the balance of the period may be in the case of any given tribal development block, the position being reviewed afresh at the end of the ten-year period. If necessary, the extension of tribal development blocks to cover all the eligible areas in each State could be spread over a slightly longer period. In predominantly tribal areas, the first few years are taken up in preparing the people for development, in providing essential staff and buildings and in taking other preliminary steps. By the time the first stage comes to an end, little is achieved by way of development so that, precisely as the people of an area become more ready to reap the benefits of development and to participate in it, the resources available to them tend to diminish. It is proposed to consider these suggestions further in consultation with the States.

7. *Area approach.*—In addition to the considerations mentioned above, there are two major weaknesses in the present programme of tribal development blocks. In the first place, the average tribal development block with a population of about 25,000 is much too small for providing several of the services which are essential for the fuller development of the tribal people. Programmes like communications, irrigation, forestry, processing industries and vocational and secondary education could gain greatly from being planned in terms of somewhat larger areas. In many parts of the country, tribal economic problems lend themselves readily to an area or regional approach. It is, therefore, proposed that in the Fourth Plan tribal development blocks situated within a district should be grouped into one or more tribal development areas. At the district or subdivisional level, special personnel should be provided to look after the needs of a tribal development area as a whole. Depending upon physical features, social structure, communications and economic needs for each area so demarcated, an effort should be made to draw up a systematic plan of development. This will take into account resources available under general sectors such as roads and road transport, agriculture, animal husbandry, forestry and cooperation, rural electrification and transmission and distribution, small and processing industries, hill area plans, rural works and programmes for the expansion of education and other social services. When large industrial and mining projects are undertaken in tribal areas, steps should be taken simultaneously, as part of the area plan, to ensure that the local population is helped and equipped to adapt itself to participate in future development. Local institutions as well as specialists and non-official workers should be intimately associated with the preparation and execution of area development programmes. Groups of villages situated within the district, which are inhabited by tribal communities but are not sufficient to form tribal development blocks, could be treated as tribal pockets and given attention as part of the tribal development area or otherwise.

8. In proceeding thus, it should be possible also to correct the second major weakness of the existing programme, namely, its relatively small coverage in relation to the total tribal population. By the end of the Third Plan, tribal development blocks would have covered about one-third of the tribal population. Even with extension of the coverage to areas with 50 percent of tribal population, tribal development blocks will serve at the end of the Fourth Plan only 70 to 75 per cent of the total tribal population. Though the approach of tribal development areas built into the scheme of tribal development blocks, supplemented by measures pertaining to groups of villages inhabited by tribal communities, it is hoped to cater to the needs of a larger propor-

tion of the tribal population. It should be added, however, that this approach will call for considerable strengthening of the existing administrative machinery and for more effective implementation as well as for much greater cooperation and initiative on the part of institutions and leadership within each area. The various Departments concerned at the State level should work together to demarcate tribal development areas and to evolve and implement coordinated plans for them. The Department of Social Welfare at the Centre, in cooperation with the Department of community Development, and corresponding Departments in the States should assume much more specific responsibility than at present for planning in relation to tribal areas and for observing closely the execution of various development programmes.

9. Conditions in different tribal areas vary widely. In each area it is essential to study carefully the special needs and problems of the people and to formulate fairly long-term plans for dealing with such basic problems as communications, development of agriculture and horticulture, including improvement of existing methods of shifting cultivation and introduction of settled cultivation, development of cooperative organisations for marketing, credit and construction, re-orientation of the prevailing system of education and provision of larger facilities for vocational and technical education, and the building up of local personnel to carry out the many tasks which rapid development inevitably entails. In working out such plans for tribal areas, there is need to draw upon Tribal Research Institutes and upon specialists available in the universities and elsewhere, To this end, steps will be taken to enable these Institutes to play a larger role in promoting tribal development. It is also proposed to utilise more fully the resources of the Anthropological Survey of India in the study of tribal problems and in designing future patterns of tribal development.

10. *Rehabilitation of displaced tribal families.*—Since the commencement of planning, in a number of States, industrial and mineral development projects and major schemes for irrigation and power development have entailed large scale acquisition of land and consequent displacement of local tribal populations. The traditional life and livelihood of the communities concerned were dislocated. Resettlement on land could be arranged only to a limited extent. Often compensation paid in cash did not last long. Temporary employment as unskilled workers during the construction stage could not be followed by absorption in productive work on a more continuing basis. Where new housing colonies were established, these did not provide a satisfactory means of earning a living. These problems have received greater attention in projects taken up under the Third Five

Year Plan. The Scheduled Areas and Scheduled Tribes Commission had suggested that where tribal communities are likely to be affected, the scheme of rehabilitation should be an integral part of the project itself and should include comprehensive programmes for education, technical training, housing, re-settlement and future employment. As far as possible, efforts should be made to provide for rehabilitation in the form of land so that the resettled tribal families are able atleast to produce for the primary needs of those living in industrial townships. State Departments concerned with tribal affairs should be associated from the beginning in drawing up plans of rehabilitation and welfare personnel and voluntary workers should assist the execution of rehabilitation and re-settlement programmes. In projects undertaken in the future, where tribal populations are involved, the Central Ministries concerned should associate the Departments of Social Welfare and Community Development in drawing up suitable schemes for re-settlement and rehabilitation.

11. *Tribal education.*—In predominantly tribal areas, along with communications and the reconstruction of the agricultural economy, there is urgent need to develop a system of education which can meet the requirements of economic and social development and is responsive to the cultural and economic needs of the people. In these areas, education and development should proceed together, each supporting and stimulating the other. Frequently, tribal communities live in scattered hamlets. This makes it difficult to provide on an adequate scale educational and other facilities within reasonable distance from the habitations. While primary schools have to be located as near the homes as may be possible, at the middle and secondary levels, the necessary facilities have to be provided at centrally situated schools which are equipped with hostel accommodation. Schools in tribal areas are often poorly equipped and do not have a sufficient number of trained teachers. In particular, facilities for the teaching of science and mathematics are inadequate. Special attention needs to be given during the Fourth Plan to the training of teachers, provision of hostel facilities, introduction of science teaching, improvement in the teaching of mathematics and provision of vocational courses such as will enable school leavers to fit into the agricultural and other programmes of development proposed to be undertaken in the tribal areas. These development programmes have also to be continuously intensified and strengthened, so that their absorptive capacity increases in keeping with the increase in the number of those leaving the schools.

12. *Cooperation.*—In dealing with many of the economic problems which beset tribal communities, cooperative organisations can make an important contribution, more specially, in the provision of credit,

in marketing, in labour and construction activities and in forest operations. In this connection although the proposals of the Special Working Group on Cooperation for Backward Classes which reported in 1962, were broadly accepted, little practical action has ensured thus far. Early in 1966, proposals concerning the financial and organisational patterns for service cooperatives, primary marketing cooperatives, forest labour cooperatives and labour contract and construction cooperatives were communicated to the States. Administrative arrangement for implementing cooperative programme pertaining to scheduled tribes are still weak. It has, therefore, been proposed that in each State the Department of Cooperation should assign to the Tribal Welfare Department a special officer to take charge of cooperative programmes for scheduled tribes. This officer should be placed in a position to function effectively on behalf of both Departments and should help the staff in tribal development blocks to work out programmes for building up cooperatives. To assist in marketing and supplies in a number of States, it would be useful to promote organisations on the lines of the Andhra Cooperative Finance and Development Corporation and the Madhya Pradesh Cooperative Development Society.

13. The Scheduled Areas and Scheduled Tribes Commission had urged that, as a policy, Government should take steps to eliminate middlemen in the exploitation of forests. Forest cooperatives have, therefore, a crucial role in the tribal economy. However, outside Gujarat and Maharashtra, they have not made much advance. It is important that over a period, in most forest areas with tribal populations, contractors should be replaced by forest cooperatives, by departmental operations and by corporations specially constituted for exploiting major forest produce. Under the programme for cooperative development, appropriate patterns of financial assistance for forest cooperatives have been already prescribed. Financial provisions also exist in the budget of tribal development blocks. An inter-departmental study group on forest cooperatives, which is examining the operational problems involved in working forest cooperatives, has recommended that an experienced officer of the State forest Department should provide liaison and technical assistance to the Tribal Welfare Department and the two Departments, along with the Department of Cooperation, should jointly formulate and implement a well-conceived programme for forest cooperatives. Tribal communities residing in or near forests need to be educated in methods and techniques of conserving and developing forest resources. Forest officers should be given training in the working of forest labour cooperatives and should be helped to understand more intimately the life and problems of tribal communities living in forest areas. Forest Departments have also to be strengthened

for extension work among tribal communities. Since forest work is mainly seasonal, it is essential to devise measures for providing employment during slack seasons to tribals living in forest areas. In these areas, wherever possible, the rural works programme would be utilised for providing opportunities for upplementary work.

14. *Administration and personnel.*—One of the main reasons for inadequate implementation of programmes pertaining to scheduled tribes has been the lack of administrative machinery and of personnel specially trained for and adapted to work among tribal communities. Since tribal communities frequently live in remote and inaccesible areas working conditions are difficult, and, besides a high proportion of unfilled positions, the staff turn-over is heavy and transfers are frequent. Moreover, few technical and administrative officials are able to acquire the close understanding and sympathy without which much cannot be accomplished in tribal areas. It has, therefore, become necessary that in States which have sizeable tribal populations, specially where they live in more or less concentrated areas, special measures should be taken to strengthen the administration and provide the necessary personnel. These may include, where necessary, steps to constitute sub-cadres as part of the various technical and administrative cadres of the State. Through such sub-cadres an adequate number of trained persons can become available for long enough periods for continuous work among tribal communities.

15. In the nature of things, development programmes in tribal areas cannot be implemented successfully through the official machinery alone. Local institutions with which tribal communities are closely associated at the village, block and higher levels have a large role to play. It is, therefore, important to strengthen these institutions, to give them adequate authority and resources and to provide them with competent and trained officials. Further, there is need for large numbers of voluntary workers drawn increasingly from amongst the tribals themselves. Therefore, special efforts should be made to strengthen voluntary organisations for work among tribal communities.

SCHEDULED CASTES

16. At the Census of 1961, scheduled castes numbered 65 million or about 15 per cent of the country's population, about 7 million being in urban areas and 58 million in rural areas. The economic problems of scheduled castes are inter-mixed with those of much larger numbers who may be described as the weaker and the more vulnerable section of the community. To an extent, therefore, these problems may be resolved only with more rapid growth and structural change in the

economy as a whole. Yet, these sections of the community are faced with problems which cannot wait and in many directions there is need for urgent action. Besides the general problems with which the weaker and vulnerable sections are confronted, several groups among scheduled castes still labour under serious social disabilities inherited from the past.

17. In spite of efforts to end the practice of untouchability, the evil still persists to some extent, specially in the rural areas. Provisions in the Constitution banning the practice of untouchability and making its practice a cognizable offence have not been found adequate. A sustained drive to improve the educational standards of scheduled castes and to strengthen and diversify their economic opportunities is called for. The basic economic conditions under which forms of untouchability can permeate social relationships have to be speedily eliminated, for, under present conditions, social hardships are greatly accentuated on account of economic weakness. A Committee set up by the Department of Social Welfare is at present engaged in reviewing the progress of action against untouchability. It is clear that in this sphere there is no room for complacency and there is need for a nation-wide effort to create a sense of equal worth and equal dignity for every citizen in the land.

18. Since nearly 90 per cent of the scheduled castes live in the villages and a considerable proportion among them engage in agricultural labour or in occupations of low skill and productivity, whatever measures can be taken to build up the agricultural economy and to diversify the rural occupational structure, will be of benefit to the scheduled castes. To the extent to which industrialisation helps larger numbers from amongst scheduled castes to attain skills and enter new vocations, they will gain both in economic opportunity and in social status. Schemes for the resettlement of landless labourers and for rural industries and the rural works programme will also go some distance in improving earnings and expanding employment opportunities.

19. Provisions for special programmes for the scheduled castes are intended to supplement benefits and facilities which they obtain through schemes undertaken for the community as a whole. Over the first three Plans, the special provisions have accounted for a total outlay of about Rs. 72 crores, of which Rs. 34 crores have been devoted to educational schemes, Rs. 11 crores to economic uplift schemes and Rs. 27 crores to health, housing and other schemes. For the Fourth Plan an outlay of Rs. 66 crores has been provided for scheduled castes. The principal schemes to be implemented and the tentative provisions

proposed for them are given below :—

	(Rs. crores)
post-matric scholarships and other educational schemes	30
house sites	15
economic development	15
improvement in working conditions in occupations such as scavenging, flaying, tanning, etc. . . .	2
other schemes	4
total	66

20. *Education.*—Although there is still a considerable gap in education and literacy between scheduled castes and the rest of the community, significant progress has been made and an increasing proportion of children from amongst scheduled castes are now attending school and availing of facilities for higher education. All States have extensive programmes for pre-matric stipends and other assistance in education. In addition, the Central Government is financing the scheme for post-matric scholarships. In implementing scholarship schemes for scheduled castes, as for other backward classes, certain administrative problems which are now being encountered need special attention. The existing procedures, both at the Centre and in the States, should be simplified as they tend to cause delay in the award of scholarships. Heads of institutions should be placed in a position to grant scholarships on their own authority within the general schemes approved by State Governments. Assistance in education to students from backward classes should go beyond the award of scholarships. There should be adequate provision of coaching facilities, arrangements for watching progress of individual scholars, planning ahead of careers and ensuring placement in appropriate institutions. With such personal follow-up, scheduled castes and other backward classes will be able to take advantage of reservations made in their behalf, both in educational institutions and in appointments in the public service. It is essential that the Department of Social Welfare at the Centre and the Departments concerned at the State level should be closely associated with Education Departments in the administration of scholarships and other assistance given to students from scheduled castes and other backward classes.

21. *Economic development.*—The main object of providing special resources for schemes for economic uplift is to enable scheduled castes and other backward classes to obtain the maximum advantage from provisions available under general schemes. Where necessary, supplementary help could be given, for instance, by way of subsidies or

share capital. It has been already proposed to State Governments that since cooperatives have an important contribution to make to the development of scheduled castes and other backward classes, in such programmes as fisheries, poultry, dairying, etc., appropriate proportions of the available resources should be earmarked for cooperative programmes.

22. *House sites.*—Little has been done so far for the provision of house sites for scheduled castes and other backward classes in the villages. In a few States, special efforts have been made to acquire lands and provide house sites for Harijans, but the problem has vast dimensions and is becoming increasingly acute. Moreover, even where house sites are made available, as a rule, the principle of segregation continues to prevail. The provision of house sites is a national problem and it is hoped that the Fourth Plan can mark the beginnings of a large-scale effort. A problem of this size calls for action both on the part of the Government and on the part of local communities and civic institutions. Conditions have to be created in which the latter will be prepared to take upon themselves the obligation to establish certain minimum living conditions for the weaker sections and, more specially, for scheduled castes and other backward classes and the landless. Three essential conditions have to be met. Firstly, resources should be availble to facilitate acquisition of land for the provision of house sites. Secondly, funds available under programme for the welfare of backward classes, rural housing and community development should be used in a concerted manner so as to achieve a definite impact. Thirdly, local communities and institutions should be induced to provide land for house sites, not so much as a matter of acquisition by the Government (which may of course be necessary in the last resort), but as an essential aspect of community development. Care should be taken to avoid building on fertile agricultural lands. To the extent to which common lands belonging to the village community are made available, this could take the form of a collective contribution.

23. If all the sources of funds are utilised for implementing a coordinated scheme, resources of the order of Rs. 40 to 50 crores could become available during the Fourth Plan for the provision of house sites for Harijans, landless agricultural workers and small peasants in the villages. To begin with, the programme could concentrate on villages which fulfil three criteria, namely, a degree of congestion in village homest eads, a significant proportion of Harijans and landless families in the village and the willingness of the Panchayat to sponsor a scheme for the provision of house sites. Schemes for the provision of house sites which cater to the needs of Harijans as well as landless agricultural wor-

kers and small peasants could be an effective means for combating traditional attitudes leading to segregation. Instead of land being obtained mainly for providing house sites to individual families, housing cooperatives could be formed in the selected villages and they could be given assistance from cooperative and other sources for establishing community facilities and constructing wells. Wherever the rural works programme is in operation, help could be given during the slack agricultural seasons for clearing the land and constructing houses on the basis of mutual help. If a number of villages within a block embark together upon such a programme, it should be possible also to arrange for artisan cooperatives to construct doors and windows of standard size and to promote the formation of brick-kiln cooperatives. Such a programme, if implemented with determination and on the basis of cooperation from local communities, could make a beginning not only in solving the problem of house sites for Harijans and landless workers, but also in improving living conditions in rural areas for all sections of the village community. The programme will of course call for combined action and leadership on the part of a number of agencies and for a great deal of educational work in the villages. Viewed as a movement at the community level, as it proceeds, the programme should also generate increasing confidence in the rural areas.

24. *Voluntary organisations.*—As in the case of scheduled tribes, and indeed to an even larger degree, voluntary organisations and voluntary workers have a vital contribution to make in work among Harijans. In recent years, the Central Government has assisted a number of leading organisations in carrying through programmes of training and social work among Harijans. In cooperation with the States, it is proposed to assist some of these voluntary organisations in building up cadres of social workers who can educate public opinion and also help members of scheduled castes and other backward groups to organise themselves for mutual self-help through cooperative and other agencies. A provision of Rs. 3 crores has been made for this purpose.

DENOTIFIED TRIBES

25. The total population of denotified tribes is reckoned at about 4 million. Although a sum of Rs. 3 crores has been spent during the Third Plan on welfare programmes for denotified tribes, on the whole this section of the population continues to live precariously and on the margin of subsistence. A small proportion among them possess land, but frequently they are not skilled cultivators and lack resources and little has been done to help them overcome their difficulties. An effective plan for imparting new skills and creating greater economic

opportunities for denotified tribes and specially for those who have no stable means of livelihood has yet to be formulated. It is proposed to work out specific proposals in cooperation with the States, keeping in view the need for a combined correctional and welfare approach and for programmes for training and economic uplift suited to the needs and skills of different groups.

26. The number of social workers who have interested themselves in the welfare of denotified tribes is extremely small, but this is an area of work in which there is considerable need and scope for strengthening voluntary organisations and enlisting voluntary workers. There is also insufficient knowledge of the cultural background and the social and economic problems of different groups among denotified tribes. It would, therefore, be useful if one or two schools of social work could adopt the study of denotified tribes as their special field of interest.

NOMADIC AND SEMI-NOMADIC GROUPS

27. There are several nomadic and semi-nomadic groups in different parts of India, some sizeable, others quite small. Broadly, they may be divided into four categories: (a) pastoral nomads, (b) trading nomads, (c) nomads rendering specialised services and (d) miscellaneous groups. The nature and extent of nomadism differs among each of these groups, but most of them now need to be settled so that they can begin to benefit from social, economic and technological developments which are now within their reach. This has become all the more necessary because, with disruption in traditional relationships between settled and nomadic populations, most of these groups are passing through difficult times and live on the margins of subsistence. Studies in respect of nomadic groups in western Rajasthan indicate that nomads themselves now desire help in settling down, and in fact many of them are already undergoing a gradual process of settlement. In many parts of the country many village communities along customary routes followed by nomadic groups have become increasingly resentful of the damage done to crops, grazing grounds and water resources by herds of cattle brought by the nomadic groups.

28. It is essential to evolve programmes of rehabilitation for each group separately, taking into account its social and economic organisation, values, skills and motivations and the resources of the region to which it belongs. Schemes for economic uplift, pasture development, housing, education and training would need to be worked out. In view of the fact that the process of settlement is likely to be spread over many years, it is necessary that those groups which will continue to be nomadic or semi-nomadic should receive assistance as may

be possible in keeping with the needs and tenor of their nomadic life. Efforts should be made to provide amenities at convenient points along the routes traditionally followed by those groups, specially drinking water supply, fodder, verterinary aid, credit, marketing and camping facilities. It has to be admitted, however, that too little is at present known about most of the nomadic groups. As part of the Fourth Plan it is proposed to obtain more precise information at least for the larger nomadic groups and to prepare for each of them a few essential schemes of development suited to their present needs and way of life.

CHAPTER XXII

LABOUR POLICY AND PROGRAMMES

Labour legislation since Independence and agreements arrived at jointly between representatives of workers and employers and the Government proceed from two basic concepts. Firstly, the relationship between workers and employers is one of partnership in the maintenance of production and the building up of the national economy. Secondly, the community as a whole as well as individual employers are under obligation to protect the well-being of workers and to secure to them their due share in the gains of economic development. A series of important legislative measures, which were enacted between 1947 and 1952, continue to provide the main structure of protective labour legislation. In recent years, greater emphasis has been placed on the role of collective bargaining, on mutual agreements reached in the Indian Labour Conference and other tripartite bodies and on agreed schemes such as those embodied in the Code of Discipline in industry, the inter-union Code of Conduct and the Industrial Truce Resolution. On the whole, tripartite arrangements have responded well to changing needs and aspirations and at two critical occasions during the Third Plan they helped achieve labour solidarity and strengthen national unity.

2. The legislation already enacted and the voluntary arrangements mentioned above will continue to form the basis of labour policy during the Fourth Plan. It is inevitable that labour problems and industrial relations should now be influenced by wider economic developments to a greater extent than before. Developments concerning price levels and cost of living, availability of foreign exchange for supply of raw materials, conditions for the utilisation of existing capacities, measures to raise levels of productivity and the overall rate of economic and industrial growth are of great importance for industrial peace and for policies relating to wages and the welfare of workers. The labour movement and the trade unions should now be in a position to assume larger responsibilities. One of the main tasks in the Fourth Plan will be to evolve practical ways in which they can make an increasing contribution to national development and national policy. The growth of the public sector provides opportunities for working out new concepts of labour relations and the association of labour in management of industry. Equally, it places greater responsibility on labour and the trade unions. Labour has a

vital role in increasing productivity, and management has to help create conditions in which workers can make their maximum contribution towards this objective. In the main, labour policy has thus far given protection to those engaged in organised industries. In the coming years, labour policy and labour programmes have to be broadened steadily to provide for agricultural labour as well as for various groups of unorganised workers such as contract labour, construction workers, women workers, workers engaged in scavenging and others.

3. Three sets of problems of implementation will call for special attention during the Fourth Plan. Firstly, there is room for considerable improvement in the administration of the legislation which has been enacted for the protection, safety and welfare of industrial workers. In the second place, important schemes such as works committees and joint management councils have made very limited progress. It is necessary to orient both workers and employers to these changes and find ways of meeting the practical problems which have been encountered. Finally, there are several directions in which execution of programmes which have a large bearing on the welfare and prospects of workers has to be strengthened, for instance, workers' education, provision of facilities for imparting higher skills and training to workers, social security and labour research.

INDUSTRIAL RELATIONS

4. The Industrial Disputes Act provides for machinery and procedures for settlement of disputes through conciliation, adjudication and voluntary arbitration. While the provisions of this legislation are available as a last resort, it is recognised that greater emphasis should be placed on collective bargaining and on strengthening the trade union movement for securing better labour-management relations, supported by recourse in large measure to voluntary arbitration. The Code of Discipline in Industry stressed the need to avoid unilateral action by employers as well as workers, to settle disputes and grievances through mutual negotiation, conciliation and voluntary arbitration and to utilise existing machinery for settlement of disputes with the utmost expedition. The working of the Code of Discipline was reviewed at a tripartite meeting in August 1965. It was appreciated that the Code had succeeded on the whole in bringing a positive approach to bear on industrial relations and that further steps should be taken to ensure its fuller observance. To this end a number of constructive suggestions has been advanced. Weaknesses in the implementation of the Code are well known, and there is wide agreement on the need to strengthen the machinery at present available for

conciliation, adjudication and voluntary arbitration. In this connection, it would be useful if summary powers could be conferred on Labour Courts to enable them to recover dues and monetary benefits to which workers might be entitled under various awards and agreements.

5. *Works Committees.*—A large proportion of the grievances of workers and the difficulties encountered by them from day to day can be best dealt with in the early stages through works committees. The Industrial Disputes Act provides for the constitution of works committees consisting of representatives of employers and workers in equal number in industrial establishments with one hundred or more workers. Works committees are concerned with matters which directly affect the conditions under which workers function such as safety and accident prevention, provision of simple amenities, education and recreational activities and administration of welfare and fine funds. Matters such as wages, incentive schemes, fixation of workloads and others which may bear on the activities and obligations of trade unions are normally outside the purview of works committees. Even so, works committees have made extremely limited progress. In 1965, about 3400 works committees representing about 1·7 million workers were reported to be functioning. There were also 236 works committees functioning in public sector undertakings. There has not been sufficient appreciation yet of the contribution which works committees can make towards workers' welfare and efficiency and the opportunities for training workers to assume increasing responsibilities in the units to which they may belong. It may be that there have also been some reservations on the part of trade unions in implementing the scheme. The stage has reached, when, through the consideration of the subject afresh at the tripartite level from the standpoint of the objectives to be attained in the Fourth Plan, the setting up of works committees at the plant level should be clearly separated from issues affecting the functioning and organisation of trade unions on which there could be legitimate room for differences in emphasis. It is to be hoped that within each industry, leaders of management and labour will do everything in their power to promote the establishment of works committees in all eligible units and help them to carry out the tasks entrusted to them.

6. *Joint Management Councils.*—The progressive extension of the scheme of joint management councils to new industries and units was envisaged as a major programme for the Third Plan period. It was hoped that in the course of a few years joint management councils could become a normal feature of the industrial system. As the Industrial Policy Resolution, 1956, had stated, in a socialist democracy labour

is a partner in the common task of development and there should be not only joint consultation but also progressively greater association of workers and technicians in management. The scheme of joint management councils has been introduced so far in 41 undertakings in the public sector and 81 in the private sector. The functions of joint management councils fall into three categories, namely, (a) matters in which responsibilities are entrusted to them, specially administration of welfare measures, supervision of safety measures, operation of vocational training and apprenticeship schemes, preparation of schedules of working hours and breaks and of holidays and payment of rewards for valuable suggestions, (b) matters in which they have the right to receive information, discuss and offer suggestions and (c) matters in which they are expected to be consulted. Issues such as wages, bonus and others which are subjects of collective bargaining as well as individual grievances fall outside the scope of joint management councils.

7. In a series of seminars and evaluation studies, the practical problems encountered in the successful working of the scheme of joint management councils have been identified. Under the Industrial Policy Resolution, enterprises in the public sector are expected to set an example in promoting workers' participation in management. A committee of heads of public sector undertakings has recently reviewed the experience of joint management councils in public enterprises and has suggested some practical steps. It is recommended that in cooperation with the Ministry of Labour and Employment, the Ministries concerned should formulate specific programme for development of joint management councils during the Fourth Plan period and follow it up with an intensive orientation programme for workers and technical and managerial personnel at different levels. In the private sector, progress will depend as much on the support which central trade union organisations give to the movement as to the lead provided by progressive and forward-looking enterprises. Both in the public and in the private sector, the training and orientation of managers, technicians and workers is essential to the success of the scheme. The movement for joint management councils has rightly been viewed as an area for voluntary effort. But, it should be recalled, when the scheme was first considered, the proposal for introducing enabling legislation was dropped mainly because employers had agreed to introduce it on a voluntary basis. Joint management councils have therefore to be developed into an essential functional link in the structure of industrial relations.

8. *Labour relations in public sector undertakings.*—Labour legislation and tripartite agreements apply equally to undertakings in the

private sector and the public sector. Studies of industrial relations and working of labour laws undertaken by the Implementation and Evaluation Division of the Ministry of Labour and Employment suggest that the position concerning implementation of labour legislation in public sector undertakings has been generally satisfactory, but some instances of inadequate observance of safety provisions have been noticed. In public enterprises, within the framework of existing arrangements, a great deal can be done to eliminate causes of conflict. Among the suggestions which have been made are the strengthening of personnel departments, fuller use of the services of labour officers and conciliation officers, prompt attention to the grievances of workers, greater recourse to voluntary arbitration in the settlement of disputes, satisfactory promotion procedures and effective working of the machinery for joint consultation. At times rivalries between and within unions and action on the part of unrecognised unions lead to labour unrest. Even so, with greater attention to the management of human relations and the welfare of workers and their families and studied efforts to create wider opportunities for workers by way of training and education and attainment of higher levels of skill, it should be possible for public sector undertakings to establish labour relations conducive to greater productivity and better performance. As part of their manpower planning, public enterprises should make special efforts to help workers who attain the necessary skills and equipment to rise to positions of higher responsibility. In a sense, an industrial dispute in a public sector undertaking is a confession of failure on both sides. Managements in the public sector should strive to bring together workers and technical and managerial cadres and create among workers a sense of identification and personal involvement in the enterprise to which they belong. On their part, trade union organisations should be expected to assist in the smooth and uninterrupted working of public sector undertakings, for, this is a necessary condition for the success of the public sector itself.

TRADE UNIONS

9. The number of registered trade unions has risen from about 4,600 in 1951-52 to about 11,900 in 1963-64. The number of trade unions submitting returns was about 7,200 with a total membership of 3·9 million. The number of trade unions affiliated to all-India organisations was smaller—being, in 1962-63, 2,665 with a membership of 2·2 million. Compared to the total number of workers, membership of trade unions accounts for about 50 per cent in mines, 40 per cent in factories, 25 per cent in the railways and less than 20 per cent in the plantations. Considering the present levels of membership,

as a matter of public policy, workers should be encouraged to become members of trade unions. Trade unions should serve not only as agencies seeking for their members fair wages and proper conditions of work and living, but should also play an increasingly important role in the nation's development. Inevitably, strong trade union organisations are able to assume greater responsibilities in serving their members as well as in participating in shaping economic and social policies and programmes. The various forums in which labour is represented, provide a ready means through which trade unions can make an effective and continuous contribution in the area of policy. These include, besides tripartite bodies like the Indian Labour Conference, Development Councils constituted under the Industries (Development and Regulation) Act, Industrial Committees, Productivity Councils, Labour Welfare Boards, Port Trusts, Dock Labour Boards and others. Given a stronger membership base, with greater response from trade unions, Boards of Directors of public sector undertakings could provide for labour representation and the concept of labour-management partnership could be carried into a wide range of new activities. Similar action could be promoted in the private sector.

10. These considerations will progressively gain in importance in the coming years; over the next decade, the industrial labour force may increase perhapstwo-fold and the membership of trade unions may increase even more. The proportion of workers with higher standards of education and skill and ability to assume higher responsibilities will increase year by year. Their attitudes and expectations will also go on changing. Correspondingly, the role of trade unions and their possible contribution to the well-being of workers and to economic and social development should greatly increase. National trade union organisations are well aware of these perspectives. There are, however, two principal limitations. The first is the absence of an unified trade union movement. In the field of labour organisation, unity has to grow from within. Therefore, the larger the area of common interest and common action, the greater will be the extent to which unity in a practical sense can be achieved. National trade union organisations recognise, no doubt, that the labour movement as a whole and the interests of workers as a body are wider than the activities in which the organisations themselves are at present able to participate. Therefore, to the extent to which they are able to enlarge the area of cooperative action amongst themselves, they will be able to serve more fully not only their own members but also the community as a whole.

11. The second obstacle which comes in the way of workers' organisations assuming a larger role arises from lack of resources. Trade unions are unable to collect sufficient funds through regular

subscriptions on the part of members and have to depend on donations from workers when they receive special payments such as bonus dues or action in support of their grievances has to be organised. In common interest, the machinery for collection of union dues needs to be strengthened. The existing subscription rates should be revised and minimum rates linked to monthly earnings of workers proposed. Even these measures may not prove adequate specially if trade unions are to take up constructive activities which involve employment of trained full-time personnel as well as organisational work on a continuing basis. This is the problem to which national trade union organisations need jointly to address themselves. One possibility which may be worth exploring may be for national trade union organisations to come together in an independent non-government organisation which may be able to support registered trade unions in undertaking specific projects for the welfare and development of workers. In this way, within the framework of the Five Year Plans, it may become possible to assist the trade union movement in making a larger contribution in many areas of constructive work than at present appears possible.

WAGES, INCENTIVES AND PRODUCTIVITY

12. The current economic situation as well as the requirements of planned development call for a carefully considered and widely agreed approach on the various issues which arise in the consideration of prices, of wages for government and non-government employees and of other incomes, notably, profits and dividends. While these issues call for separate treatment, in the context of labour policy, certain lines of action need to be stressed :

(1) Although there are obvious difficulties, it is essential for the success of planned development and, more specially in the context of the Fourth Plan, that an integrated incomes policy should be evolved for the guidance both of the public and the private sector.

(2) The question of price stability is basic to wage policy; for, pressures for higher wages at present arise directly from price increases and increases in the cost of living.

(3) While criteria related to fair wages and nutritional requirements are important as long-term guiding principles, in the current situation, the issue is somewhat narrower, namely, how the workers' standard of living can be protected in view of the price increases which have occurred in recent years.

(4) In principle, it would be appropriate to link dearness allowance with cost of living, but complete neutralisation of increases in cost of living at all levels is not feasible. In this connection, steps must be taken to improve upon existing arrangements for collection of price data and their publication along with consumer price index numbers.

(5) The total wage should have three components, namely, the basic or minimum wage, an element related to cost of living and an element related to increase in productivity. In seeking to link increases in wages with increases in productivity, the need for standardisation of wages and for narrowing of wage differentials should be kept in view, having regard particularly to those categories of workers whose wages are at present unduly low.

(6) Efforts should be made to extend the scope of wage systems based on payment by results. Such systems should be evolved by agreement with workers and in an atmosphere of good industrial relations and should be applied discriminatingly in industries and in activities to which they are appropriate.

(7) Since 1957, wage boards have been appointed in several industries and suggestions have been made for setting up wage boards in a few others. The stage has been reached when a careful review of the working of wage boards and the criteria followed by them should be undertaken, so that guiding principles for the Fourth Plan period may be evolved in the near future.

(8) During the Fourth Plan, a concerted drive should be made for achieving higher levels of productivity in all branches of industry. To this end, in relation to each industry, representative organisations of employers and workers should evolve a broad, common approach for the guidance of individual production units. To begin with, and as an example to be followed in other industries, such an agreed approach should be worked out carefully for cotton textiles, cement and steel.

(9) At the level of the production unit, as an immediate step, simple incentive schemes should be evolved jointly by employers and workers in keeping with their specific requirements and circumstances.

(10) For implementing agreed incentive schemes for increasing productivity, it is essential that managements should take

all possible steps to ensure satisfactory working conditions. Contingencies such as uncertain supply of raw materials or possible intervals of unemployment should be taken into account. In addition to financial incentives, non-financial incentives, such as greater security of employment, job satisfaction and job status should be given a due place. Objectives, such as securing reductions in cost, economy in the use of materials, etc., should be incorporated in incentive schemes to the extent possible. Incentive schemes should cover those workers whose work is of a direct nature as well as others.

LABOUR PROGRAMMES

13. *Social Security.*—The Employees' State Insurance Scheme extends at present to 3·13 million employees and 3·03 million insured persons family units. In the Fourth Plan it is proposed to bring the remaining employees and their families in all areas with insurable population of 500 or more within the scope of the scheme. In addition, the scheme is to be extended to include all factories employing 10 or more persons using power and 20 or more persons without power and to shops and commercial establishments in some of the larger cities. The Employees' State Insurance Corporation which has so far concerned itself mainly with the curative aspect of medical care has increasingly to address itself to preventive measures such as promotion of health education and environmental hygiene. Family planning facilities, which have been recently introduced in the E.S.I. dispensaries and hospitals, should be further extended during the Fourth Plan period. The working of the Employees' State Insurance Scheme has been recently reviewed by a special committee. The recommendations of the committee are under consideration. The committee has proposed that in consultation with the Indian Labour Conference, Government should evolve a comprehensive scheme of social security. This should not only ensure merger of the Employees' State Insurance and Provident Funds and the conversion of the latter into pensionary benefits but should also provide strong financial and administrative base for such benefits as are at present not available.

14. The Coal Mines Provident Fund and Bonus Schemes Act, 1948, covers about 450,000 workers and the Employees' Provident Funds Act, 1952, now applies to 105 industries and covers more than 4·5 million workers. In 33 of these industries, provident fund contributions are made at 8 per cent of wages, including dearness allowance. In others, contributions are levied at the rate of 6½ per cent. Suggestions have been made that the rate of provident fund contributions

should be raised beyond 8 per cent and, in any event, there would be immediate justification for raising the present rate to a number of industries in which the lower rate still prevails. These and other suggestions are under consideration.

15. Preliminary proposals for the introduction of unemployment insurance for subscribers to the two Provident Fund Schemes are at present under examination. Proposals for introducing compulsory insurance for workers engaged in hazardous occupations are also under consideration.

16. *Working Conditions.*—Improvement in working conditions depends in large part on the effectiveness with which the existing labour legislation is enforced. In this respect, there appears to be considerable room for improvement. In particular, it is felt that existing provisions for penalties in case of default are not adequate and minimum penalties should be laid down at least for the graver offences. At present the labour inspectorates in the States are not adequately staffed and equipped.

17. *Safety.*—Questions pertaining to industrial safety are receiving considerable attention. A National Safety Council for Mines was set up in 1963. A National Safety Council for other industries has also been established recently. The latter is expected to develop into an all-India institution for propagating safety consciousness amongst management and labour, encouraging research on safety problems and disseminating information. The Central Labour Institute and the three Regional Institutes, which were set up during the Third Plan, are expected to expand their activities. The establishment of some feeder institutes is also visualised. The growth of chemical and petrochemical industries and other hazardous industries which may come up would require extensive research in industrial hygiene. There is also need for greater study of factors causing accidents in the more accident-prone industries. In view of the high rate of accidents in a number of industries, in addition to appointing safety officers, evaluation and investigation into health hazards and safety surveys, it is essential that workers' representatives should be associated closely with the working of national safety institutes, safety committees or other organisations which may be established for propagating safety consciousness or for imparting safety training. Manufacture of protective equipment suited to Indian conditions and not having imported components has to be encouraged. The evolution of safety standards in industry by bipartite agreement and adoption of self-regulation, as has been done in the cement industry, could also be tried out in other industries. As in the coal mining industry, suitable training

programmes with emphasis on safety should be encouraged for the benefit of new entrants into industry.

18. *Housing.*—It is essential to ensure certain minimum standards for industrial workers in respect of living conditions. During the Third Plan, shortfalls occurred in the schemes for industrial housing, housing for plantation workers and housing for dock labour. The recent decision to provide for a subsidy under the plantation labour housing scheme should encourage more rapid progress. The statutory Coal Mines Labour Welfare Fund has financed the construction of nearly 50,000 houses, but the tempo of work needs to be speeded up. In the Fourth Plan, outlays amounting to Rs. 45 crores have been provided for the subsidised industrial housing scheme, Rs. 2·5 crores for dock labour housing and Rs. 2 crores for the plantation labour housing. A five-year programme for housing has also been drawn up under the Coal Mines Labour Welfare Fund.

19. *Labour Welfare.*—Separate statutory welfare funds are proposed to be set up for workers in manganese, dolomite, limestone and other mines on the lines of the Coal Mines Welfare Fund. Several State Governments have established welfare funds and a number of Labour Welfare Centres has been set up. The activities of these centres have to be developed further during the Fourth Plan, and in their management workers should have greater initiative and responsibility. Fuller opportunities should be given for cultural and recreational activities for workers, while the statutory funds should provide housing, medical, water supply and other facilities, on an increasing scale specially in the larger establishments.

Some progress has been made during the Third Plan in setting up consumer cooperatives and fair price shops for industrial workers. It is important that cooperative stores and fair price shops are enabled to supply most of the requirements of workers. The establishment of such stores and shops in smaller undertakings and residential areas with working class concentrations should also be promoted. There is need also for greater emphasis on the development of cooperative credit societies among industrial workers, many of whom are heavily indebted.

A committee set up by the Ministry of Labour and Employment is engaged in examining the functioning of the various welfare schemes in operation in industrial establishments, and is expected to suggest improvements in the working of these schemes.

20. *Workers' Education.*—During the Third Plan, under the workers' education programme, 16 new regional centres were established, and 200 education officers, 6,314 worker-teachers and about 3 lakh workers received training. In the Fourth Plan, it is proposed to establish 12

new regional centres and to provide training for 565,000 workers, 9,960 worker-teachers and 400 education officers. Because of the rapid pace at which the programme has grown, the quality of training seems to have suffered to some extent and in the Fourth Plan it will be necessary to give special attention to this aspect. It has been pointed out that for the workers' education programme to develop as a movement, steps should be taken to secure much greater involvement in it of trade unions, State Governments, local bodies, universities and colleges. It is essential that trade unions should be persuaded to participate in workers' education programmes on a much larger scale than at present. The scope of the workers' education programme also needs to be widened to include schemes to enable the more promising workers to achieve higher levels of skill and education. At the same time, in industries which have significant proportions of illiterate workers, the workers' education programme should provide for schemes for eradication of illiteracy. Specific proposals for adult literacy amongst industrial workers have been made by a Panel set up by the Committee on Plan Projects. These schemes have to be implemented in close cooperation with education authorities.

TRAINING AND OTHER PROGRAMMES

21. At the end of the Third Plan, the training programme for craftsmen provided for 116,570 seats compared to 42,685 at the end of the Second Plan and 10,534 at the end of the First Plan. Over the Fourth Plan period, industrial training institutes are expected to make about 7 lakh trained craftsmen available. Accordingly, the number of seats in these institutes will be increased to about 213,000 by the end of the Fourth Plan. At present 26,000 apprentices are undergoing training in industrial establishments. The apprenticeship programme is proposed to be extended to a number of industries not at present covered by it and to this end appropriate trades and training programmes are being established. It is hoped to bring about a three-fold increase in the number of apprentices in the course of the Fourth Plan. Expansion of craftsman training and apprenticeship schemes calls for increase in training facilities for instructors. The capacity of the seven existing central training institutes is proposed to be increased from about 1900 to about 3100 by the end of the Fourth Plan. During the Fourth Plan period, about 9,000 instructors will be trained.

22. Among the important training programmes visualised under the Fourth Plan may be mentioned the proposal to take over existing cluster type and other training centres and to reorganise them into rural training institutes. The expansion of these institutes will be of

great significance for the programme for imparting skills to rural youth to which reference has been made in the Chapter on "Employment and Rural Manpower". Increasing need is now being felt for training in newer or more difficult trades such as electronics and tool and die making and for training of a more advanced character required for foremen. Senior personnel at different levels have also to be trained. Special facilities will be established for such training. For training higher level personnel and conducting research into the techniques of trade training, it is proposed to establish a central staff training and research institute. With a view to upgrading the skill of workers, the existing part-time training schemes will be reorganised. Mine mechanisation training institutes will also be expanded according to requirements. Training organisations at the national and regional levels have to be strengthened with a view to carrying out these programmes.

23. As stated in an earlier Chapter, an intensive programme of employment studies is to be undertaken with a view not only to establishing carefully tested employment norms, but also studying the structure of employment in different branches of the economy and in different regions. In this task, the employment service has a major role to fill. With a view to providing vocational guidance to new entrants into the labour force from the wider perspective of economic development in different parts of the country, it would be necessary to undertake surveys of skills at the area level, industry and occupational surveys and rural and urban labour force surveys. The information which these surveys will provide will be of key importance in planning for the better utilisation of human resources in different parts of the country.

24. The Fourth Plan makes an allotment of Rs. 145 crores for schemes for training and other programmes for workers. This includes provision in the States for labour welfare schemes and for the Employees' State Insurance Scheme, craftsman training and allied programmes, manpower and employment service schemes, workers' education, labour institutes, safety schemes and the programme of research and investigation undertaken by the Labour Bureau.

A AL LABOUR AND UNORGANISED WORKERS

cerning agricultural labour were reviewed at an
in August 1965, and also by the Planning
committee on agricultural labour. It is
t parts of the country the benefits of develop-
he bulk of agricultural workers to any appre-
th of population has borne on them with

special harshness. To the extent the agricultural economy of a region grows and production expands continually, the volume of employment available also increases, but in the country as a whole, there is considerable under-employment. A large section of agricultural labour faces not only economic difficulties but also social disabilities. Adequate remedies for the present condition of agricultural labour lie, on the one hand, in fundamental changes in the agrarian structure, including development of cooperative farming and land resettlement programmes and, on the other, in industrial and economic growth, and more specially the diffusion of industry into small towns and rural areas. Meanwhile, the more pressing problem is one of expansion of employment opportunities and measures to reduce under-employment. It is hoped that the rural works programme which is calculated to provide work in the slack agricultural seasons for about 1.5 million persons will bring significant relief in a number of areas which are densely populated and where problems of unemployment are specially acute. The programme for provision of house sites for Harijans, landless agricultural workers and small peasants, which forms part of the Fourth Plan, has to be implemented with a sense of urgency. There is need also to implement minimum wage legislation more effectively than at present and to ensure credit facilities to landless workers on a much larger scale than now available. It is considered that at the Centre, both within the Ministries of Food & Agriculture and Labour & Employment as well as in the States, there should be special cells for watching closely the progress of development programmes which have particular bearing on the welfare and development of agricultural workers and studying the special problems which confront them in different parts of the country.

26. Besides agricultural labour, there are other groups of workers who have been hitherto without aid and protection and have now to be brought within the scope of labour legislation and State action. Central legislation for regulating the conditions of work of construction and building workers is being considered and a tentative draft bill is under circulation. A bill for regulating the conditions of work in the bidi industry is already before Parliament. A bill to regulate the employment of contract labour is also under examination.

LABOUR RESEARCH AND STUDIES

27. There is need for broadening the research base for formulating and executing plans for the well-being of workers. For this purpose, a number of schemes have been initiated during the past few years. The more important among them are the agricultural labour enquiries, family budget enquiries, wage

census and surveys of labour conditions in different industries. The Central and Regional Labour Institutes have also conducted a number of studies in the field of industrial hygiene, industrial medicine, industrial physiology, rationalisation of workloads, etc. The Ministry of Labour and Employment have carried out several case studies on industrial relations and the state of implementation of labour laws in public sector undertakings. Similar studies on industrial relations have been undertaken in the universities and research institutions under grant from the Research Programmes Committee. To encourage labour research, three labour research centres have been recently set up in Bombay, Delhi and Lucknow. It is necessary to strengthen the existing base of information and study in matters pertaining to labour by extending it to include areas which have not yet been covered and improving quality by emphasising research in depth. There is need for developing a trained cadre of research workers in this field. This is an area in which the main effort so far has fallen on the Government. It is important that trade unions and managements should now enter this field to supplement official effort and to promote the study of problems of special interest to workers.

REAPPRAISAL OF LABOUR POLICY

28. From time to time suggestions have been made that there is need for a fresh and comprehensive review of the aims and working of labour policy. The Royal Commission on Labour reported as far back as 1931; to an extent the data were brought up-to-date by the Labour Investigation Committee, 1946. Since Independence the industrial scene has undergone radical changes. There has been marked diversification in industrial production, and the entry of the public sector in industry is a new development of great significance. The structure of management has changed in several respects, even more the structure of the working class. Important changes are likely to take place in the nature and composition of the labour movement in the years to come. There will also be other important developments in the economy as a whole. Having regard to these considerations, the Government of India have under consideration at present a proposal to appoint a National Commission on Labour.

CHAPTER XXIII

REHABILITATION

At the beginning of the Third Plan there were three outstanding problems concerning rehabilitation of displaced persons from Pakistan. A residual number of displaced persons from West Pakistan had to be provided with housing, education and medical facilities. Over 28,000 families (about 150,000 persons) from East Pakistan living in camps in West Bengal and elsewhere and 200,000 partially rehabilitated families living outside camps in West Bengal remained to be fully resettled. Finally, the Dandakaranya Project awaited completion. The relief camps in the eastern region were closed in March, 1961. Over 100,000 acres of land were relcaimed in the Dandakaranya Project area for settling 10,500 families by the end of Third Plan. Of this, about 50,000 acres of agricultural land were allotted to refugee settlers and 18,000 acres to local tribal population. The expenditure on rehabilitation in the Third Plan period was Rs. 42·4 crores.

New Influx

2. Since January, 1964, however, there has been fresh large scale immigration from East Pakistan. Over 800,000 persons migrated into India, of whom about 300,000 (nearly 67,000 families) were admitted to transit and relief camps. Migration from East Pakistan still continues, though at a reduced rate. Hence provision has to be made not only for the 40,000 or more families (about 200,000 persons) who are still in transit and relief camps, but also for possible additions to them. The likelihood of a sizable repatriation of Indians from certain other countries has also to be kept in view.

Policy for Re-settlement

3. The shortage of good agricultural land will not permit more than a limited number of families to be resettled in agriculture. The rest will have to be resettled in small-scale and medium industries, agro-industries, and trades and professions. Planned allocation of population from primary to secondary and tertiary activities is, therefore, going to be an important feature of the rehabilitation programme in the Fourth Plan.

4. In terms of geographical distribution, displaced persons will find new homes in 11 or 12 different States and Union Territories. Madhya Pradesh, Assam and Maharashtra have agreed to accept a large number of families for purposes of rehabilitation. A significant number will be pioneers in virgin areas yet to be opened up under

the Special Areas Development Programme. This programme aims at building up the economic infrastructure of selected areas of low population density which are at the same time rich in productive potential. The rest will be settled in the Dandakaranya area.

OUTLAY

5. A rehabilitation programme of this magnitude offers significant opportunities for economic development. In the Fourth Plan, these opportunities are going to be explored to a much greater extent than in the Third Plan. Apart from expenditure on relief in transit camps, a development programme amounting to Rs. 90 crores is envisaged for the rehabilitation of displaced persons. This will comprise schemes for resettlement of families in gainful employment in agriculture, trade and industry, education of children and medical care for all, technical and vocational training and large scale promotion of cottage, small and medium industries. Except in areas declared as Special Areas where separate funds for development will be provided, this will also cover the expenses of reclamation of virgin land for purposes of resettlement. The break-down of expenditure envisaged in the Fourth Plan is as below :

Rehabilitation Schemes and Outlays

scheme	(Rs. crores)
Dandakaranya project	27
rehabilitation industries corporation	14
rehabilitation schemes other than in Dandakaranya	27*
technical and vocational training	3
education and health	5
rehabilitation reclamation organisation	3
fuller rehabilitation of earlier settlers	4
rehabilitation of repatriates from countries other than Pakistan	7
total	90

6. About 180 villages have so far been set up under the Dandakaranya Project in which nearly 9000 families have already been resettled. In the Fourth Plan period about 200 new villages will be set up. There will be five large composite agricultural farms providing livelihood to over 2000 refugee families. Three industrial estates will be established and about Rs. 8 crores will be spent by the Rehabilitation Industries Corporation in the area in setting up cottage, small and medium industrial units providing employment to about

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*Includes Rs. 2 crores for social welfare programmes.

12,000 refugees. About 200 primary schools, 50 middle schools and 4 high schools will cater to the educational needs of the children of the new settlers. Two Industrial Training Institutes will turn out artisans and craftsmen. In the field of health services, 40 new dispensaries and 10 ten-bed hospitals will be set up and there will be adequate provision for family planning, malaria eradication and other essential services. Similar provision will be made for other areas where displaced persons are resettled.

7. The Rehabilitation Industries Corporation will be the chief agency for promoting industries for displaced persons. This Corporation has already gained useful experience in diverse industrial fields and has been currently managing two industrial estates and a number of industrial units of different sizes and products in the eastern region. In addition, State Governments as well as the Dandakaranya Project will promote certain industries in the interest of rehabilitation of displaced persons.

8. The Special Areas Development Programme for which a separate provision has been made in the Plan has now been entrusted to the Ministry of Rehabilitation. It will also prove to be of considerable assistance in rehabilitating displaced persons. Of the areas which will be brought under this programme in the Fourth Plan, Chanda in Maharashtra and Andaman and Nicobar Islands hold out great promise. If the technical problems of reclamation and development of the Sundarbans in West Bengal can be solved, that area also should be able to absorb a sizable number of displaced persons.

CHAPTER XXIV

PUBLIC CO-OPERATION AND PARTICIPATION

SOCIAL and economic development has necessarily to be a cooperative endeavour between the official and non-official agencies. In the successive Plans a great deal of emphasis has been laid on the importance of securing public co-operation and participation in carrying out the development programmes. Even so, it is recognised that in the implementation of the Plans, it has not been possible to enlist the support of the people in the requisite measure. The difficulties encountered are due partly to defective administrative arrangements and partly to other factors inherent in our present social set-up which tend to make the process of involvement of the people relatively slow. It is, therefore, important to ensure that the aspect of securing public cooperation and participation receives greater attention in various sectors of the Plan.

2. Voluntary organisations and voluntary workers have made commendable contribution in organising community welfare and developmental activities. Over the past three Plan periods, voluntary contributions for community activities in cash, kind and services have been estimated at about Rs. 180 crores. An important development in the voluntary sector has been the expansion of the construction activities of the Bharat Sevak Samaj. Its effort has been to keep the tender rates as low as possible. A Working Group set up by the Planning Commission estimated that if all the construction works executed by the Samaj, since its inception, had been entrusted to private contractors, the additional cost to the exchequer would have been of the order of Rs. 3 crores.

3. Voluntary organisations can play a particularly valuable role in community activities. Given the necessary encouragement and support, Plan schemes with a welfare content, entrusted to them, are often executed more economically, expeditiously and efficiently. In their functioning they are flexible and, working through them, the people have a sense of participation. On the other hand, if these schemes are executed through official agencies, people do not often identify themselves intimately with such agencies. When they are not actively involved, they remain unconcerned and apathetic or even hostile. The benefit of such schemes to the community, therefore, tends to be less. Voluntary service can attract manpower which would have otherwise remained either idle or been used for personal gain.

4. The success of family planning as a nation-wide movement will depend in a large measure on the work of voluntary organisations. In rural areas women workers can give useful service in the women's welfare extension projects linked with the community development programme. School lunch programmes are another example where voluntary work has already proved valuable and can be expanded. Voluntary workers have much to contribute in the programmes designed to secure a better life for Harijans and other under-privileged groups. In urban community development, experience so far shows that voluntary workers can do a great deal to improve the community self-help programmes in the city slums. They can also help organise consumers so as to safeguard their interests against the malpractices of the trade. Labour and social service camps can enlist young men and women to build schools, roads and other public works and undertake social service. Voluntary organisations equipped for construction work can play a useful part in bringing down construction costs besides earning resources for financing their welfare activities. In the universities, colleges and civic organisations, Planning Forums comprising students and teachers or private citizens can bring the national goals closer to the people and enlist support for development programmes. Public co-operation is thus a vast field. For, in every aspect of development there are many ways in which the community can contribute.

NEED FOR SELF-HELP PROJECTS

5. The unsatisfied needs of the people are so vast that all the investments in public and private sectors together can, at this stage, only make a limited provision for them. It is, therefore, necessary to harness the time, energy and other resources of millions of people for constructive activities for the welfare of the community. For this purpose, it will be useful if for each important sector of the Plan, schemes are selected under two major groups : (i) those which are to be initiated by official agencies and where co-operation of voluntary agencies is required, and (ii) those which may be initiated by voluntary agencies and for which Government may give necessary support and assistance. Suitable orientation training may be arranged so as to equip the people for the different tasks involved in these schemes. Pioneering projects in these fields organised on a self-help basis and relating to some specific problems should be encouraged and supported, particularly during their formative period.

6. The National Advisory Committee on Public Co-operation, which includes representatives of a number of leading voluntary organisations such as Bharat Sevak Samaj, Akhil Bharat Sarva Seva Sangh, All India Women's Council, Family Planning Association

of India, Indian Conference of Social Work, Indian Council of Child Welfare, Harijan Sevak Sangh, Gandhi Smarak Nidhi and others, has sponsored national programmes in public co-operation and serves as a forum for the consideration of problems relating to public participation in development programmes. In the Fourth Plan an allotment of Rs. 10 crores has been made for public co-operation schemes to be formulated on the basis of the recommendations made by the National Advisory Committee on Public Co-operation. These schemes are mainly intended to provide to the participating voluntary organisations and other non-official agencies facilities for research, training, pilot projects and evaluation, and to strengthen them by building up a cadre of trained whole-time and part-time workers.

7. The following table gives the scheme-wise break-up as well as the targets in terms of physical units for the Fourth Plan, together with the comparable figures for the Third Plan :

scheme	Third Plan		Fourth Plan	
	physical targets/ units	expenditure Rs. lakhs	physical targets/ units	financial outlay Rs. lakhs
a. *grant-in-aid schemes* :				
lok karya kshetras (rural and urban) . . .	500	86·54	700	190·00
planning forums . . .	950	10·06	1,800	105·00
national consumer service .	central and 3 State Units	1·74	Units in all States	30·00
research, training and pilot projects	—	33·52	—	300·00
educational work on prohibition	40 centres	4·26	—	75·00
total 'a' . .		136·12		700·00
b. *loan schemes* :				
construction service of voluntary organisations and labour co-operatives . . .	out-turn Rs. 20 crores	80·75	out-turn Rs. 30 crores	300·00
commercial and semi-commercial activities with social objectives				
total 'b' .		80·75		300·00
total 'a' + 'b' .		216·87		1000·00

A brief explanation of some of the more important schemes is given below.

LOK KARYA KSHETRAS (RURAL AND URBAN)

8. Community action programmes can yield much better results if implemented in close collaboration with non-official agencies. The

main object of the Lok Karya Kshetra programme is to supplement the official effort in organising extension work through voluntary organisations, educational institutions and other non-official agencies. Good results usually follow where the Kshetra is run by voluntary organisations in association with educational institutions. Certain Kshetras which have concentrated on one or two specific activities have been able to obtain striking results. About 44 voluntary organisations and educational institutions are participating in this scheme.

PLANNING FORUMS

9. This is a popular programme and now about 950 Forums are functioning throughout the country. With a view to creating Plan consciousness among the teachers and students, these Forums organise lectures, talks, seminars, symposia, essay and debating competitions, exhibitions and small savings campaigns, and undertake socio-economic surveys. The scope of the programme is gradually increasing through the adoption of the adjoining villages and slum areas by universities and colleges for development and constructive work.

NATIONAL CONSUMER SERVICE

10. The National Consumer Service has been set up with the main object of protecting the interests of the consumers. The Service will be mainly concerned with the organisation of consumers' councils at different levels, research in consumer problems, promotion of consumer co-operatives, development of consumer resistance, avoidance of extravagance and wastage, studies relating to market intelligence, suggesting measures for prevention of adulteration and other malpractices and exercising quality control. In the conditions concomitant to a developing economy, the National Consumer Service has an important role.

RESEARCH, TRAINING AND PILOT PROJECTS

11. The Central Institute of Research and Training in Public Co-operation has started functioning recently. It will strengthen the voluntary organisations and other non-official agencies by providing them suitable facilities for research, training and evaluation. It will also help them in the preparation of their plans.

CONSTRUCTION SERVICE OF VOLUNTARY ORGANISATIONS AND LABOUR CO-OPERATIVES

12. In pursuance of the recommendations of the Third Plan, certain concessions were given to the construction service of voluntary organisations and labour cooperatives by way of exemption from security deposits and earnest money, loan assistance for working capital

and purchase of equipment, share capital participation for labour co-operatives, deputation of or subsidy for technical and managerial personnel and reservation of work for labour co-operatives. Apart from direct economies, the construction service has helped in maintaining standards of work, ensuring a better deal for workers and inducing public authorities to simplify administrative and financial procedures. The construction service of the Bharat Sevak Samaj has submitted the lowest tender in respect of a large number of public works. This assisted in checking the tender rates and had a salutary effect on the construction costs. Besides, in many areas completion of works by the service has left behind a pool of skills and experience. This has in turn encouraged voluntary organisations at the local level to take up construction work and other allied activities. This has made for greater self-reliance. The programme will be further strengthened.

COMMERCIAL AND SEMI-COMMERCIAL ACTIVITIES WITH SOCIAL OBJECTIVES

13. It is desirable that voluntary organisations should be encouraged to take up such activities as are intended to provide goods and efficient services at a reasonable price. If such activities are run by voluntary organisations, not for purpose of profit but from the point of view of service to the community, they will provide healthy competition and will assist in checking price rise. Such activities will also yield some modest income to the voluntary organisations for financing their welfare and developmental activities. It is proposed that loan assistance may be given to the voluntary organisations for taking up such activities.

PROHIBITION

14. The Third Plan recognised Prohibition as essentially a social welfare movement and emphasised the need for organising educational work for creating strong public opinion in favour of prohibition. A number of Nashabandi Lok Karya Kshetras were opened in different States through voluntary organisations. The working of prohibition throughout the country has been studied by a Study Team set up by the Planning Commission. The Report of the Team is under consideration of the Government. Prohibition policy in the Fourth Plan will be formulated in the light of this Report.

URBAN COMMUNITY DEVELOPMENT

15. This programme was taken up in 1965-66 and twenty pilot projects were sanctioned. In these projects emphasis is being placed on self-help on the part of the loal communities and on enabling the relatively less privileged sections of the community to obtain the

maximum benefit from facilities provided under various programmes of the Government and the municipal bodies. The projects are being implemented through the local bodies concerned and with the co-operation of all available non-official agencies and voluntary organisations in the area. An inter-departmental coordination committee has been set up in the Ministry of Health to review and guide this programme. The programme will be expanded during the Fourth Plan on the basis of the experience gained in these 20 pilot projects. The provision for urban community development will come out of the outlay provided for urban development.

PUBLIC EDUCATION AND MASS COMMUNICATION

16. There are certain national tasks on which the rate of development and growth of the economy depends and which can be executed only with the support of the people. Some of these are family planning, adult literacy, stepping up of agricultural production, avoidance of wastage of food, increase in the rate of savings, and slum improvement. How to educate and mobilise the people on a nation-wide scale for these important tasks is really the crux of the programmes for public co-operation and participation. Each important section of the society, such as farmers, industrial workers, teachers and students, public servants, members of legislatures and local bodies and social workers, will have to work out in concrete terms their obligations and responsibilities in respect of the Plan programmes and policies. The people will have to be enlightened about it on a nation-wide scale. For this purpose, it will be necessary to adopt such latest methods and techniques of mass communication as are feasible in the peculiar conditions of this country. An Institute of Mass Communication has recently been set up by the Ministry of Information and Broadcasting to provide training in information methods and techniques. All available publicity media and a large number of official and non-official organisations and institutions including educational institutions and voluntary organisations will have to be harnessed in this national task.

17. The successive Plans have emphasised the role of various publicity media in quickening the processes of social and economic change. They have to help in creating better understanding of the significance, objectives and priorities of the Plan schemes. This is the first step towards enlisting widespread community participation in the reconstruction of social and economic life. The publicity media employed in this task are the radio, community receiving sets, films, mobile vans, exhibitions and audio-visual aids. National Plan Weeks are celebrated by the Planning Forums throughout the country for spreading Plan consciousness among the intelligentsia. Plan Information Centres have also been organised for this purpose. These

programmes will be strengthened during the Fourth Plan with adequate technical facilities for the spread of information. They will aim not only at mass enlightenment but also at creating an involvement in developmental tasks and a feeling of self-help and mutual aid.

18. The country has made varying degrees of progress in literacy, availability of reading material and newspapers, and the establishment of an adequate communications system. The methods and techniques of conveying information and enlisting popular participation must, therefore, take into account the regional conditions. There should be a phased programme for developing channels of communications best suited to target areas and selected audiences. This can be arrived at on the basis of a study of existing conditions and future needs.

19. Publicity is a two-way traffic. It is as important to study popular reactions as to put across plans and policies. Radio station, field publicity organisations, teleprinter lines and other communications facilities provide one line of approach. Simultaneously, quicker and more scientific ways of public opinion analysis should be adopted as a source of information and as a guide to policies.

CHAPTER XXV

OTHER PROGRAMMES

Programmes included under this head are : statistical schemes of the Department of Statistics of the Central Government and States' Statistical Bureaux, study of natural resources, research programmes in the field of social sciences, management administration and planning, evaluation organisations, manpower units, schemes for social assistance, welfare of Government employees, State Capital projects, expansion of Government printing capacity and Plan publicity programmes both at the Centre and in the States.

2. The distribution of outlay between the Centre, the States and the Union Territories for the programmes covered under the head "other programmes" in the Fourth Plan may be seen from the following table:

Table 1.—Head of Development—Other Programmes

(Rs. crores)

sector	total	Centre	States	Union Territories
Statistics	18·0	10·6	6·5	0·9
Study of Natural Resources .	0·5	0·5	—	—
Research Programmes Committee	1·0	1·0	—	—
Social Science Research Committee	4·0	4·0	—	—
Evaluation Organisations . .	1·0	—	1·0	—
Manpower Units . . .	0·5	0·5	—	—
Training for Management Administration and Planning . .	1·0	1·0	—	—
Schemes for Social Assistance .	4·0	4·0	—	—
Welfare of Government Employees	8·0	8·0	—	—
State Capital Projects . .	11·0	—	11·0	—
Expansion of printing capacity .	8·0	8·0	—	—
Plan Publicity . . .	13·0	6·4	6·0	0·6
total . .	70·0	44·0	24·5	1·5

STATISTICS

THE STATISTICAL SYSTEM

3. Economic growth continually calls for an increased volume of statistics for purposes of planning and for policy and administrative

decisions. Expenditure on statistics was, therefore, increased with a large expansion of staff at different levels. The flow of information increased considerably but is still lagging behind requirements in coverage and accuracy. Progress would be necessarily gradual because of the decentralised structure of the collection and processing of statistics in India. Most of the Central Ministries have their own statistical units to look after their operational needs. Each State has its own Bureau of Statistics with District statistical offices; some States also have Departmental units of statistics. Collection of primary statistics is thus done either as a part of the administrative work of departments and government agencies or through part-time investigators without adequate training at the village or higher levels. Compilation and tabulation, at the State and national level of statistical data from such diverse sources of information present many difficulties.

4. The Central Statistical Organisation has the responsibility for general coordination, concepts, definitions, standards, and inter-State comparability for purposes of aggregation at the national level. Through the efforts of the Central Statistical Organisation considerable progress has been made in promoting an articulated statistical system for the country as a whole. But much more remains to be done in this direction. The National Sample Survey, which was started in 1950 has developed into a country-wide net-work of trained investigating staff supported by a specialised group of experts on sampling and processing of data. It is serving as an independent source of data with all-India coverage on a uniform system, which also supplies valuable checks on internal consistency, inter-State comparability and validity of statistical information.

5. The chief obstacle to the speedy improvement of the quality of statistics in the country is the shortage of trained statistical personnel at the professional, technical and primary levels. A national training programme is an essential requirement for the improvement of the statistical system. The Indian Statistical Institute is providing professional and technical training in statistics up to the Ph.D. level, and is engaged in fundamental research in the theory of statistics and development of new tools for application in different fields. It is also giving special courses in 7 or 8 places in India in collaboration with the Central Statistical Organisation and the State Statistical Bureaux.

OUTLAY

6. In the Third Plan Rs. 3·5 crores was spent for the statistical schemes of the Department of Statistics including the Central Statistical Organisation, the National Sample Survey and the Indian Statistical Institute and about Rs. 3 crores for grants for State Statistical pro

grammes. In the Fourth Plan, out of a provision of Rs. 18 crores, Rs. 9 crores is for the schemes of the Department of Statistics, Rs. 2 crores for training programmes at the Centre and in the States, and Rs. 7 crores for the support of statistical schemes of State Statistical Bureaux.

GENERAL

7. In addition to the outlay mentioned above there is separate provision for statistical programmes in different Central Ministries and States including professional training and research in the Institute of Agricultural Research Statistics, and in universities and educational institutions. A great deal of statistics is also available from the day-to-day activities of Government departments and agencies, much of which, if compiled and processed in a suitable way, would be of great value for purposes of planning, execution and control of administrative operations.

8. There is urgent need for taking a comprehensive view of statistical programmes at the Centre and in the States as a whole, and of strengthening the general coordination of statistical activities to improve coverage, internal consistency, comparability, and validity of the statistical information. With increasing integration at the stage of planning of programmes and of central co-ordination there can be increasing decentralisation of operational responsibilities.

COMMITTEE ON NATURAL RESOURCES

9. Under its terms of reference, the Planning Commission is required to make an assessment of the various resources of the country and to formulate a plan for their most effective and balanced utilisation. For balanced development it is necessary to assess availabilities, requirements and potential in each of the principal regions within the country. Accordingly, the Five Year Plans have presented accounts of the land, water, mineral and energy resources of the country on the basis of available information, drawn attention to the main problems in each field and set out programmes for further surveys and investigations. At the time of the formulation of the Third Plan, the Planning Commission considered that the stage had been reached when a comprehensive view needed to be taken of the extent and quality of the information available inrespect of the country's main natural resources, the principal gaps that existed, the surveys required in this connection, and further steps that needed to be taken for an effective and balanced utilisation of these resources. It set up the Committee on Natural Resources in December, 1961. The Committee has appointed a number of Sub-Committees and Working Groups to carry out the

various studies that are approved by it. The different studies conducted under the aegis of the Committee on Natural Resources bring out in more comprehensive details the availabilities and deficiencies of the main natural resources in different regions of the country. Besides presenting a long-term strategy for the development of agriculture, coal, oil-refining, forest, iron ores, fertilizers, power and others so that necessary steps may be taken for their fuller utilisation in a phased manner, the studies also make recommendations for immediate action for development of natural resources. A large proportion of the basic work is got done through the various scientific and technical organisations in the country, both official and non-official. The Committee has already carried out a number of studies during the Third Plan period. A brief account of these studies and the programme for the Fourth Plan is given below.

LAND RESOURCES

10. One of the most important early studies undertaken by the Committee was "A Co-ordinated Study of Organisations concerned with the Surveys of Natural Resources, e.g., The Survey of India, Geological Survey of India, Soil and Land Use Survey, Forest Survey, Cadastral Survey and Town Planning Surveys". Among other studies undertaken by the Committee mention may be made of those on Waste Lands and their Reclamation Measures, Utilisation of Urban Wastes, Survey and Utilisation of Agricultural and Industrial By-products and Wastes, Survey and Reclamation of Ravines and Soil Conservation in Catchment Areas in Dams and River Valley Projects. Studies which are already on hand and are proposed to be completed during the Fourth Plan period are Land Resources of India, Study on Low Unit Yield of Rice and Wheat in relation to utilisation of fertilisers and preparation of a Soil Map of India in the scale 1:1 million.

FOREST RESOURCES

11. The Committee undertook studies on forest raw materials for pulp, paper, newsprint and other forest based industries, fuel wood trends and prospects, and wild life preservation during the Third Plan period. It proposes to undertake an intensive study productivity in construction timber industry and the economics of various forest operations under the Fourth Plan.

MINERAL RESOURCES

12. The studies on mineral resources undertaken by the Committee during the Third Plan period include investigation of copper, lead, zinc and antimony-bearing regions, competitive position of major Indian export minerals in world markets, aerial photographic and aeromagnetic surveys of the promising mineral areas in India,

bauxite deposits of India, coal mine fires and subsidence and phosphate deposits and their beneficiation. It proposes to undertake studies on the methods of coal mining, agglomeration of iron ore fines, flux materials, raw materials for refractories, asbestos and mineral substitution during the Fourth Plan period.

WATER RESOURCES

13. The Committee has already taken up studies on ground-water resources, use of water for domestic and industrial purposes and control of water pollution and these are proposed to be continued during the Fourth Plan period.

ENERGY RESOURCES

14. An Energy Survey Committee was appointed by the Government of India in 1963 which submitted its report in 1965. The Report deals with the various energy resources, namely, coal, oil, electricity, non-commercial fuel etc. and indicates a possible pattern of a coordinated development programme to meet the energy demand. It also deals with the pricing of energy and investment required to achieve the required levels of development. An Energy Survey Unit has been set up in the Planning Commission to continue the work initiated by the Energy Survey Committee. The Unit has taken up the review of consumption of energy by its various sources, estimate of available energy supplies from various energy sources and plans for coordinated development of power resources. Apart from these general studies, the Unit also proposes to study the problem of balancing the production of by-products of coking coals and their uses and the various possibilities for reducing the import of fuel with fuller use of indigenous resources.

15. Educating the general public as well as the concerned official agencies about the importance of taking a long-term perspective of not only utilisation but also conservation of scarce national resources is an important aspect of the work of the Committee. Greater attention needs to be paid to this task during the Fourth Plan period.

RESEARCH PROGRAMMES COMMITTEE

16. The main function of the Committee has been to sponsor and promote research investigations of economic, social, political and administrative problems connected with planning and development. During the Fourth Plan greater emphasis will be laid on studies directly oriented to formulation and implementation of the Plan. From this angle a list of priority topics and areas of research has been drawn up. Studies of problems of small farmers, transport development,

resource mobilization, industrial location, wage-productivity relationships, labour market surveys, pattern of leadership in the rural areas, social tension and conflict and tribal welfare will receive greater emphasis. The tempo of research-sponsored by the Committee has increased substantially during the last 12 years. The expenditure during the Third Plan was about Rs. 54 lakhs, against Rs. 20 lakhs in the First Plan. A provision of Rs. 1 crore has been made for the Fourth Plan.

SOCIAL SCIENCES RESEARCH COMMITTEE

17. The Planning Commission appointed, in August 1965, a Committee on Social Science Research consisting of experts in the main discipline of social sciences. The Committee surveyed the state of research in social sciences in the country with a view to making recommendations for building up an expanding corps of research workers; accelerating improvement in output and quality of research; promoting the balanced distribution of research as between different disciplines, different regions as also categories of research e.g., sponsored and non-sponsored, basic and applied, and promoting an integrated and multi-disciplined approach to studies of the problems of development. It is expected that the Committee's recommendations will lead to the creation of a national coordinating body in the field of social sciences and a programme of financial and technical assistance and training for the promotion of research in the different social sciences.

18. A provision of Rs. 4 crores has been provided in the Fourth Plan for the development of social science research.

EVALUATION ORGANISATIONS

19. The Planning Commission attaches importance and urgency to measures for streamlining the machinery for planning and the system of progress analysis in the States which will in their turn strengthen corresponding activities at the Centre.

20. For strengthening evaluation arrangements in the Fourth Plan it is proposed that as part of the State Planning Department, there should be an evaluation unit which can assess the impact of important development programmes independently of but in cooperation with agencies administering these programmes.

21. To assist the Government of States and Union Territories to build up such evaluation units, an outlay of Rs. 1 crore has been proposed in the Fourth Plan. Full Central assistance to the States has been provided for advance action in 1965-66.

MANPOWER UNITS

22. A sum of Rs. 50 lakhs has been provided in the Fourth Plan for giving Central assistance to States and Union Territories for setting

up Manpower Units. This is intended to improve the existing arrangements in the States for manpower planning and for achieving coordination among the various agencies, who participate in the process of planning, supply, training and utilisation of manpower. The Units will be dealing exclusively with manpower problems on a continuing basis.

TRAINING FOR MANAGEMENT, ADMINISTRATION AND PLANNING

23. A provision of Rs. 1 crore has been made under the Plan for training for management, administration and planning. It is envisaged that training programmes in management will be jointly sponsored by the Planning Commission and the Bureau of Public Enterprises in cooperation with the Ministries concerned, and those pertaining to administration by the Planning Commission and the Department of Administrative Reforms in cooperation with the States. The programmes will fall broadly into five groups, namely, (a) management control and planning of enterprises, (b) management and planning and development programmes, (c) area development planning and administration, (d) methods and techniques for economic planning and (e) training and orientation of managers, supervisors and workers both in public and private sector, in relation to two basic management tasks for the Fourth Plan, namely, reduction in costs and increase in productivity. Training programmes will be worked out and implemented in cooperation with leading institutions and the universities. In some areas where facilities do not exist at present, new training schemes will be proposed. Action in pursuance of these proposals will be initiated by the Planning Commission.

SCHEMES FOR SOCIAL ASSISTANCE

24. The Third Plan had drawn pointed attention to the need for action at the community level for three groups of persons, namely, the physically handicapped, old persons unable to work and women and children, where they were altogether lacking the means of livelihood and support. Until a comprehensive system of social security can be developed, assistance for these groups would have to come from voluntary and charitable organisations, municipal bodies and Panchayati Raj institutions. With a view to enabling these organisations to develop their activities with the help of local communities and giving them a measure of support, a small provision was made in the Third Plan. It is a matter of regret that although the scheme was worked out and instructions were issued, for a variety of reasons, a real start could not be made during the Third Plan. The basic problems exist and it is necessary to gain experience of dealing with them on a sufficient scale to facilitate further advance. For this

purpose a provision of Rs. 4 crores has been made in the Fourth Plan. The scheme is to be implemented by the Department of Social Welfare in cooperation with the States and in association with municipal and Panchayati Raj institutions and voluntary organisations.

WELFARE OF GOVERNMENT EMPLOYEES

25. The living and working conditions of low paid Government employees in metropolitan towns need to be improved. This scheme is intended to provide relief in kind through a chain of consumers' co-operatives and better facilities, for housing, transport, and organising community welfare schemes on a self-help basis. This will contribute to higher efficiency and improved morale.

26. A provision of Rs. 8 crores has been provided for consumer cooperative programmes and other welfare schemes in the Fourth Plan.

STATE CAPITAL PROJECTS

27. Work on three capital projects namely Chandigarh (Punjab). Bhopal (Madhya Pradesh) and Bhubaneshwar (Orissa) is in progress and will be continued in the Fourth Plan. A provision of Rs. 11 crores has been made for these projects in the Fourth Plan.

EXPANSION OF PRINTING CAPACITY

28. Since the demand on the Government Presses has become more acute, during the Fourth Plan a number of new schemes are proposed to be taken up for expanding capacity of some existing presses and setting up two new photo-litho presses. A sum of Rs. 8 crores has been provided for this purpose in the Fourth Plan.

PLAN PUBLICITY

29. The aim in the Fourth and succeeding Plans is to bring into existence in the foreseeable future a communications system geared to the needs of a rapidly developing society. During the Fourth Plan period greater emphasis will be laid on the development of select media and areas. While general publicity has its own place, more publicity work needs to be carried on as an essential adjunct to developmental activities. Programmes for family planning and agricultural and irrigation development should have a built-in element for publicity arrangements.

30. In addition to such publicity linked with developmental programmes, general publicity work needs to be strengthened by establishing channels of communications which meet the specific needs of particular target areas and groups of people.

31. Fourth Plan provides for Rs. 13 crores for Information and Plan publicity Rs. 6·4 crores at the centre, Rs. 6·0 crores in the States and Rs. 0·6 crores for Union Territories.

APPENDIX I

Selected Economic Indicators

	item	unit	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
1	national income at 1960-61 prices	Rs. crores	9850	10150	10540	11190	11460	11670	12250	12100
2	per capita income at 1960-61 prices	Rs.	275	279	285	297	299	299	307	297
3	money supply with the public (as on last Friday)	Rs. crores	2016	1848	1785	1857	1981	2217	2342	2413
4	deposit liabilities of Scheduled Banks (as on last Friday)	Rs. crores	904	848	844	856	951	1051	1186	1481
5	treasury bills outstanding (as at the end of the period)	Rs. crores	358	314	315	335	472	595	836	1295
6	Plan outlay	Rs. crores	—	259·6	267·5	343·0	475·9	613·9	635	890
7	deficit financing	Rs. crores	—	2	45	36	93	157	253	497
8	cost of living index	1949=100	101	105	104	106	99	96	107	112
9	index number of wholesale prices (average of months)	1952-53=100	118·8£	118·0£	100·0	104·6	97·4	92·5	105·3	108.4
10	index number of industrial production (calendar years)	1956=100	—	73·5	75·8	77·8	83·1	91·9	100.0	104·2
11	index number of agricultural production	1949-50=100	95·6	97·5	102·0	114·8	117.0	116·8	124·3	115·9
	(i) food crops	1949-50=100	90·5	91·1	101·1	119·1	115·0	115·3	120·8	109·2
	(ii) non-food crops	1949-50=100	105·9	110·5	103·8	104·7	120·9	119·9	131·5	129·5
12	value of imports	Rs. crores	650	979	670	572	656	774	903	1036
13	value of exports	Rs. crores	601	733	578	531	594	609	620	635
14	balance of payments (current account-net)	Rs. crores	+38·9	—162·6	+60·2	+47·4	+6·0	+6·7	—312·8	—431·4

£Revised series.

APPENDIX I—(*Contd.*)

	item	unit	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66
1	national income at 1960-61 prices	Rs. crores	12950	13180	14140	14490	14740	15460	16630	15930
2	per capita income at 1960-61 prices . . .	Rs.	312	311	326	326	323	331	348	325
3	money supply with the public (as on last Friday) . .	Rs. crores	2526	2720	2869	3046	3310	3752	4080	4530*
4	deposit liabilities of Scheduled Banks (as on last Friday) .	Rs. crores	1668	1935	1916	2088	2225	2493	2807	3231
5	treasury bills outstanding (as at the end of the period) .	Rs. crores	1225	1298	1106	1175	1300	1382	1444	1612
6	Plan outlay . . .	Rs. crores	1017	1012	1118	1128	1386	1709	2031	2374*
7	deficit financing . . .	Rs. crores	140	112	—49	184	183	211	188	385
8	cost of living index . . .	1949=100	118	123	124	127	131	137	157	169
9	index number of wholesale prices (average of months) .	1952-53=100	112·9	117·1	124·9	125·1	127·9	135·3	152·7	165·1
10	index number of industrial production (calendar years)	1956=100	107·7	116·9	130·1	138·3	150·5	162·5	174·7	181·6*
11	index number of agricultural production . .	1949-50=100	133·5	130·3	142·2	144·8	137·5*	142·6*	158·0*	158·3‡
	(i) food crops . . .	1949-50=100	130·6	127·9	137·1	140·3	130·4*	135·9*	150·1*	151·8‡
	(ii) non-food crops . .	1949-50=100	139·4	135·0	152·6	153·9	151·8*	156·2*	174·1*	171·3‡
12	value of imports . . .	Rs. crores	904	961	1122	1092	1131	1290	1314	1350*
13	value of exports . . .	Rs. crores	573	640	642	661	685	793	816	805*
14	balance of payments (current account-net) . . .	Rs. crores	—327·0	—185·6	—392·4	—306·4	—345·5	—335·3	—436·7*	—319·8**

*Provisional

‡Based on 1965-66 base level (potential).

**Relates to April-September, 1965.

APPENDIX II

Selected First, Second and Third Plan achievements and Fourth Plan targets

	item	unit	1950-51	1955-56	1960-61	1965-66	1970-71
1	national income at 1960-61 prices	Rs. crores	9850	11670	14140	15930	23100
2	per capita income at 1960-61 prices	Rs.	275	299	326	325	417
3	employment generated (addl. Plan-wise)	million numbers	—	7·5	9·5	14·5	18·5 to 19·0
4	agricultural production—index numbers	1949-50=100	95·6	116·8	142·2	158·3	207·8
5	foodgrains production	million tonnes	54·92@	69·22@	82·02	72·29*	120·0
6	irrigation—utilisation (Plan-wise)						
	(a) minor—(addl.-gross)	million acres	—	9·5	9·0	13·1	17·0
	(b) major and medium —(addl.-gross)	,,	—	3·1	5·2	5·5	9·0
7	cooperation : short and medium-term loans advanced	Rs. crores	22·90	49·62	202·75	400·0	650·0
8	industrial production—index numbers	1956=100	73·5	91·9	130·1	181·6	306·0
9	coal	million tonnes	32·8	39·0	55·7	68·0	106·0
10	iron ore	,,	3·0	4·3	11·0	23·0	54·0
11	petroleum products	,,	0·2	3·4	5·8	9·9	20·0
12	steel						
	(a) steel ingots	,,	1·47	1·74	3·4	6·2	11·7
	(b) finished steel	,,	1·04	1·3	2·3	4·6	8·8
13	machine tools (graded)	value in Rs. lakhs	30	80	700	2300	10500
14	agricultural tractors	000 numbers	—	—	neg.	5·6	35·0
15	fertilizer production :						
	(a) nitrogenous	000 tonnes of N	9	80	99	233	2000
	(b) phosphatic	000 tonnes of P_2O_5	9	12	54	111	1000
16	cement	million tonnes	2·73	4·67	7·97	10·8	20·0

@Adjusted for statistical changes with 1960-61 as base.

*Potential created was 90 million tonnes.

APPENDIX II—(*Contd.*)

item	unit	1950-51	1955-56	1960-61	1965-66	1970-71
17 cloth :						
(a) mill made	million metres	3401	4665	4649	4434	5486
(b) handloom, powerloom and khadi .	,,	917	1643	2072	3146	4572
18 industrial estates (cumulative). . . .	numbers	—	1	66	300	550
19 electricity : installed capacity	million kw	2·3*	3·4*	5·6	10·2	20·0
20 electricity : towns and villages electrified .	000 numbers	3·7	7·4	24·2	52·3	110·0
21 railways : freight carried	million tonnes	93	116	156	205	308
22 surfaced roads	000 kms	156	183	235	284	334
23 shipping	lakh grt	3·9	4·8	8·6	15·4	30·0
24 students in schools (enrolment)						
(a) primary stage (age-group 6-11) : . .	million numbers	19·15	25·17	34·99	51·5	69·5
(b) middle stage (age-group 11-14) . .	,,	3·12	4·29	6·7	11·0	19.0
(c) secondary stage (age-group 14-17) .	,,	1·22	1·88	2·96	5·24	9·0
25 technical education—engineering and technology : admission capacity						
(a) degree level	000 numbers	4·1	5·9	13·8	24·7	30·0
(b) diploma level	,,	5·9	10·5	25·8	49·9	68·0
26 medical facilities : hospital beds . . .	,,	113	125	186	240	300
27 medical facilities :						
(a) doctors (practising)	,,	56·0	65·9	70·0	86·0	131·0
(b) nurses (registered)	,,	15·0	18·5	27·0	45·0	87·0 to 90·0
28 family planning centres	numbers	—	147	1649	11474	48405
29 industrial housing (Plan-wise)	numbers of houses/tenements	—	42200	61756	64549	150000
30 scholarships for backward classes (Plan-wise) (post-matric and pre-matric) .	000 numbers	—	1900	4807	11999	77500

*Relates to calendar years.

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